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Acanthis linaria (Linn.)**REDPOLL.**

Popular synonyms. Common Redpoll; Dusky Redpoll; Snowbird; Redpoll Linnet.

Fringilla linaria LINN, S. N. ed. 10, i, 1758, 182; ed. 12, i, 1766, 322.—WILS. Am. Orn. iv, 1811, 41, pl. 30, fig. 4; ix, 1814, 126.—NUTT. Man. i, 1832, 512.—AUD. Orn. Biog. iv, 1838, 523, pl. 375.

Ægiothus linaria CAB. Mus. Hein. 1851, 161.—BAIRD, B. N. Am. 1858, 428; Cat. N. Am. B. 1859, No. 320.—COUES, Key, 1872, 130; Check List, 1873, No. 146; 2d ed. 1882, No. 207; B. N. W. 1874, 114.—B. B. & R. Hist. N. Am. B. i, 1874, 493, pl. 22, figs. 3, 5.—RIDGW. Nom. N. Am. B. 1881, No. 179.

Acanthis linaria BON. & SCHL. Monog. Lox. 1850, pl. 52.

Linaria minor SW. & RICH. F. B. A. ii, 1831, 267.—AUD. Synop. 1839, 114; B. Am. iii, 1841, 122, pl. 179.

Ægiothus fuscescens COUES, Proc. Phil. Ac. 1861, 222.

Ægiothus linaria var. *fuscescens* COUES, Key, 1872, 131.

HAB. Northern North America, (except Greenland) south, in winter, to about lat. 40° (occasionally farther); breeds chiefly, if not entirely, north of the United States. Inhabits, also, northern portions of the Old World.

SP. CHAR. *Adults in spring and winter.* Ground color of the occiput, nape, scapulars, and interscapulars, brownish white, each feather with medial streak of dusky brown; rump and upper tail-coverts white, with the streaks in sharper contrast. Wings clear brownish dusky, with two conspicuous white bands, formed by tips of middle and secondary coverts; tertials broadly, and secondaries narrowly, edged with white,—this broader on inner webs. A narrow frontal band (tinged with brownish), an obscure superciliary stripe, and the lower parts in general, white; sides streaked with dusky, and lower tail-coverts each with a medial streak of the same. On the forehead and vertex a somewhat quadrate patch of intense carmine. Nasal plumules, lores, and a small, somewhat quadrate, gular spot, dark silky brown. Bill yellow, the culmen and gonys black.

Male. Throat, jugulum, and breast, rosy carmine (extending upward over the malar region, and backward over the sides almost to the flanks); rump tinged with the same.

Female. No red except on the crown, where its tint is less intense; dusky gular spot larger, extending farther on to the throat.

Adult in breeding (midsummer) plumage (=“*Æ. fuscescens*” COUES). The pattern the same as above, but the dark tint intensified and spread so as to almost entirely obliterate any lighter markings, except the streaks on the rump; the wing-bands, as well as the dorsal streaks, obsolete; streaks on the sides broader; frontal band dusky, like the occiput. Red tints slightly intensified. Bill wholly dusky.

Male. Throat, jugulum, breast, and tinge on sides and rump, rosy carmine.

Female. Without red on the breast.

Young, first plumage. Whole head, neck, and breast streaked, and without trace of red.

Dimensions. *Male.* Wing, 2.80; tail, 2.30-2.35; bill, .35-.36×.20-.25; tarsus, .53-.55; middle toe, .30-.33. *Female.* Wing, 2.70-2.80; tail, 2.30-2.35; bill, .32-.35×.23-.25; tarsus, .52-.55; middle toe, .32-.34.

The plumage of this species is quite different in summer and in winter. In the latter season the plumage is softer and more lax, and the markings better defined, though in autumn with a considerable ochraceous suffusion. In spring the colors are purer, and the

markings more sharply defined; in the breeding season the plumage assumes a burnt appearance, the dark tints intensify and spread, so that sometimes the upper parts appear almost uniformly dusky; the bill appears larger than in winter, in consequence of the less development, or wearing away, of its basal tufts. In this dusky summer condition it becomes the *Æ. fuscescens* of Coues. In the series of over two hundred examples examined, all midsummer specimens are in the plumage of *fuscescens*, while the latter is not seen in any autumnal, winter, or spring birds.

This pretty little bird is a common and regular winter visitor in the northern portions of the State, but its occurrence in the southern portions is so rare that the writer has seen it but on one occasion at Mount Carmel. It appears in flocks, which feed upon the seeds of various herbaceous plants, and is very unsuspicious. Its breeding range includes the whole region from Labrador to Alaska, with an undetermined southern limit, which, however, probably nowhere approaches very near to the northern boundary of the United States.

According to Dr. Brewer, "their migration southward in winter is evidently caused more by want of food than by the state of the temperature. They remain in high northern regions in the most inclement weather, and often appear among us in seasons not remarkably cold, and remain until late in the spring."

***Acanthis linaria rostrata* (Coues).**

GREATER REDPOLL.

Popular synonym. Greenland Dusky Redpoll.

Ægiothus rostratus COUES, Proc. Phil. Ac. 1861, 378.

Acanthis linaria rostrata STEJNEGER, Auk, i, 1884, 153.

Ægiothus linarius, var. *holbølli* B. B. & R. Hist. N. Am. B. i, 1874, 493 (part).

Ægiothus linaria holbølli RIDGW. Nom. Am. B. 1881, No. 179 a.

Ægiothus linaria holboelli BREWST. Bull. N. O. C. 1883, 95 (critical).

Linaria brunnesdens VON HOMEYER, J. f. O. 1879, 184 (part?).

CHAR. Similar to *A. linaria (vera)* in plumage (usually, however, more heavily streaked on the sides, etc.), but all the dimensions decidedly greater. Wing, 3.00-3.30; tail, 2.60-2.70; culmen, .41-.47; depth of bill at base, .25-.30; tarsus, .65-.70; middle toe, .35-.40.

This large race of *A. linaria* is the Greenland representative of the species, though it is by no means confined to that country. It is, however, there, the prevailing if not the only form, while on the

continent it occurs chiefly in winter, though occasional summer specimens from very high latitudes appear to be scarcely smaller than Greenland samples.

Mr. H. K. Coale has taken this bird near Chicago, and has kindly sent me for examination the specimens which he secured.

GENUS *SPINUS* KOCH.

Spinus KOCH, Bayr. Zool. 1816, 233. Type, *Fringilla spinus* LINN.

Chrysomitris BOIE, Isis, 1828, 322 (same type).

"GEN. CHAR. Bill rather acutely conic, the tip not very sharp; the culmen slightly convex at the tip; the commissure gently curved. Nostrils concealed. Obsolete ridges on the upper mandible. Tarsi shorter than the middle toe; outer toe rather the longer, reaching to the base of the middle one. Claw of hind toe shorter than the digital portion. Wings and tail as in *Ægiotus*.

"The colors are generally yellow, with black on the crown, throat, back, wings and tail, varied sometimes with white.

"The females want the bright markings of the male."

"This genus differs from *Ægiotus* [= *Acanthis*] in a less acute and more curved bill, a much less development of the bristly feathers at the base of the bill, the claw of the hind toe shorter than its digital portion, the claws shorter and less curved and attenuated, and the outer lateral toes not extending beyond the base of the middle claw."—(*Hist. N. Am. B.*)

The species occurring in the eastern United States (one of them probably as a purely accidental straggler) are the following:

A. Inner webs of tail feathers with a white patch.

1. *S. tristis*. *Adult male in summer*: Rich lemon yellow, with black forehead, wings, and tail; tail-coverts, band across wing, and outer wing-markings, white. *Adult female*: Wings and tail as in the male, but duller; upper parts olive, tinged with lemon-yellow; lower parts pale yellowish, or sometimes grayish white, tinged with yellow anteriorly; no black on head. *Adult male in winter*: Similar to summer female, but more brownish.

B. Inner webs of tail feathers without white patch, but with yellow bases.

2. *S. pinus*. *Adult* (sexes alike): Above grayish or brownish, below dull white, everywhere streaked with dusky; bases of secondaries and tail-feathers sulphur-yellow. *Young*: Similar, but with a fulvous suffusion, especially on tips of wing-coverts; yellow of remiges and rectrices usually more exposed.
3. *S. notatus*. *Adult male*: Entire head, neck, and jugulum, with wings and tail, black; a patch of rich yellow on bases of remiges and rectrices; upper parts greenish olive-yellow, clouded with dusky on the back; beneath rich oil-yellow. *Adult female*: Head and neck olive above and yellow beneath, like the body; wings and tail less intensely black than the male.

Spinus tristis (Linn.)**AMERICAN GOLDFINCH.**

Popular synonyms. Yellow-bird; Lettuce-bird; Salad-bird; Thistle-bird; Black-winged Yellow-bird; Black-capped Yellow-bird.

Fringilla tristis LINN. S. N. ed. 10, i, 1758, 181; ed. 12, i, 1766 320.—WILS. Am. Orn. i, 1808, 20, pl. 1, fig. 2.—AUD. Orn. Biog. i, 1831, 172; v. 510, pl. 33.—NUTT. Man. i, 1832, 507.

Carduelis tristis BP. 1825.—AUD. Synop. 1839, 116; B. Am. iii 1841, 129, pl. 181.

Chrysomitris tristis BP. 1838.—BAIRD, B. N. Am. 1858, 421; Cat. N. Am. B. 1859, No. 313.

COUES, Key, 1872, 131; Check List, 1873, No. 149; B. N. W. 1874, 116.—B. B. & R. Hist. N. Am. B. i, 1874, 471, pl. 22 figs. 7, 8.

Astragalinus tristis CAB. Mus. Hein. 1851, 159.—RIDGW. Nom. N. Am. B. 1881, No. 181.

—COUES, 2d Check List, 1882, No. 213.

Spinus tristis STEJN. Auk, i, 1884, 362.

HAB. Whole of temperate North America, breeding nearly throughout its range.

"**SP. CHAR.** *Male.* Bright gamboge-yellow; crown, wings, and tail black. Lesser wing-coverts, band across the end of greater ones, ends of secondaries and tertiaries, inner margins of tail-feathers, upper and under tail-coverts and tibia white. Length, 5.25 inches; wing, 3.00. *Female.* Yellowish gray above; greenish yellow below. No black on forehead. Wing and tail much as in the male. *Young.* Reddish olive above; fulvous yellow below, two broad bands across coverts and broad edges to last half of secondaries pale rufous.

"In winter the yellow is replaced by a yellowish brown; the black of the crown wanting, that of wings and tail browner. The throat is generally yellowish; the under parts ashy brown passing behind into white." (*Hist. N. Am. B.*)

Found abundantly throughout temperate North America, familiar in habits, and conspicuous in plumage, it is no wonder that the American Goldfinch is one of our best known birds. Known familiarly as Yellow-bird, Lettuce-bird, or Garden-bird, he is present with us at all seasons of the year, although there are many times when none are to be seen. In the fall the male loses his beautiful lemon-yellow plumage and assumes a sombre garb like that of the female, which he wears until the succeeding spring, when the rich colors of summer are resumed very gradually, the change commencing in April and continuing until the summer is at hand, before all traces of the winter dress are lost. The Goldfinch is one of the latest of our birds to commence breeding, it being usually after the first of July, in the more eastern States,* before their nests are constructed; and some broods of young first leave their nest in September. This late breeding, as Dr. Brewer suggests, is probably due to the scarcity of proper food for the young during the early part of summer.

* At Sacramento, California, however, I found this species breeding very abundantly during the month of June, nests with fresh eggs being taken from the 6th to the 28th of the month.

"The Goldfinch is to a large extent gregarious and nomadic in its habits, and only for a short portion of the year do these birds separate into pairs for the purposes of reproduction. During at least three fourths of the year they associate in small flocks, and wander about in an irregular and uncertain manner in quest of their food. They are resident throughout the year in New England and also throughout the greater portion of the country, their presence or absence being regulated to a large extent by the abundance, scarcity, or absence of their favorite kinds of food. In the winter, the seeds of the taller weeds are their principal means of subsistence. In the summer, the seeds of the thistle and other plants and weeds are sought out by these interesting and busy gleaners. They are abundant in gardens, and as a general thing do very little harm, and a vast amount of benefit in the destruction of the seeds of troublesome weeds. As, however, they do not always discriminate between seeds that are troublesome and those that are desirable, the Goldfinches are unwelcome visitors to the farmers who seek to raise their own seeds of the lettuce, turnip, and other similar vegetables. They are also very fond of the seeds of the sunflower." (BREWER.)

The notes of the American Goldfinch are for the most part remarkably sweet, partaking somewhat of the nature of the *tweet* of a canary bird, but more tender; and the song is no mean performance. The latter more nearly resembles that of the Indigo Bunting than that of any other American species, but is more irregular, less harsh, and interrupted by interpolations of the ordinary call-notes.

The following interesting notes on the nest and eggs of the American Goldfinch were kindly prepared for this work, at my request, by Mr. Hugh M. Smith, of Washington, D. C.:

"Each of eleven nests in my collection, from Virginia, is similar to the others in structure, being composed of thin strips of grape-vine bark and weed fibre, fine grass, catkins, and thread, with a few leaves occasionally worked in; these are very neatly and compactly woven together. The interior is lined with thistle-down and sometimes a few feathers. The nest is cup-shaped; but inasmuch as the situation of the nest in a tree or shrub is variable, the shape, depending more or less on its resting place, is consequently somewhat modified. Some nests—probably the greatest number—are lodged in the upright crotch of a tree; some are pendant between two forking limbs; while others are saddled on a horizontal bough.

Orchards appear to be the favorite breeding localities of the Goldfinches. Young trees are preferred to old ones, the foliage of the former being denser, and offering greater concealment to the nest. The average size of a number of nests is three inches in diameter by one and a quarter inches in depth.

"The peculiar feature connected with the nidification of the Goldfinch is the late date at which the nests are constructed and the eggs deposited. The earliest date at which the eggs accompanying the above-mentioned nests were taken, was July 27, the latest August 31, the eggs in both instances being newly laid, and probably the full set. As late as the first week in September I have seen nests with incomplete sets. It was impossible to ascertain with accuracy when the nests were built, but the time can be surmised from the dates given for the eggs. For three successive years the nests and eggs of the Goldfinch were systematically searched for in the same neighborhood; no full nests, however, were ever found prior to the 27th of July, as above stated. This may meet the objection that might be made, that had the eggs been sought for, they would probably have been discovered sooner. From three to six eggs are laid; four or five is the usual number. They are bluish white, with a delicate rosy tinge when fresh."

Spinus pinus (Wils.)

PINE SISKIN.

Popular synonyms. Pine Linnet; Pine Goldfinch.

Fringilla pinus WILS. Am. Orn. ii, 1810, 133, pl. 17, fig. 1.—NUTT. Man. i, 1832, 511.—AUD. Orn. Biog. ii, 1834, 455; v, 509, pl. 180.

Linaria pinus AUD. Synop. 1839, 117; B. Am. iii, 1841, 125, pl. 180.

Chrysomitris pinus BP. 1838.—BAIRD, B. N. Am. 1858, 425; Cat. N. Am. B. 1859, No. 817.—COUES, Key, 1872, 131; Check List, 1873, No. 148; 2d ed. 1883, No. 212; B. N. W. 1874, 115.—B. B. & R. Hist. N. Am. B. i, 1874, 480, pl. 22, fig. 16.—RIDGW. Nom. N. Am. B. 1881, No. 185.

Spinus pinus STEJN. Auk. i, 1884, 362.

HAB. Cold-temperate North America, breeding south to coast of Massachusetts, the Hudson Valley and along the Rocky Mountains to southern Mexico. (Southern breeding limit in Alleghanies undetermined.) In winter migrating, irregularly, over greater portion of United States.

"SP. CHAR. Tail deeply forked. Above brownish olive. Beneath whitish, every feather streaked distinctly with dusky. Concealed bases of tail-feathers and quills, together with their inner edges, sulphur-yellow. Outer edges of quills and tail feathers yellowish green. Two brownish white bands on the wing. Length, 4.75; wing, 3.00; tail, 2.20. Sexes alike. Young similar, but the white below tinged with yellow, the upper parts with reddish brown, and there are two pale ochraceous bands on the wing." (*Hist. N. Am. B.*)

In autumn and winter a reddish brown tinge overspreads the upper parts.

The Pine Goldfinch, or Pine Siskin, inhabits during summer the northern coniferous forests, but in winter visits the milder climates of the United States, its migration extending to the northern districts of the Gulf States, if not to the shores of the Gulf itself. Its appearance in a given locality is irregular and uncertain, to about the same degree as that of the Purple Finch. In spring, large flocks may be seen feeding upon the tender buds of apple, elm, and other trees, either alone or in company with the Purple Finch.

The nest of the Pine Goldfinch, as observed at Sing Sing, New York, is thus described by Dr. A. K. Fisher, in the "Nuttall Bulletin" for July, 1883, pp. 180, 181:

"On May 25 I secured the nest. It was situated about two feet from the top of the tree, and about twenty-four from the ground. It contained four nearly fresh eggs. The nest proper, or outside part, is a frail affair, the lining making up the bulk of the nest. The outer part is made up of fine twigs from the Norway spruce, loosely placed together, a few rootlets and pieces of string being interwoven. The lining is very compact, made up of hemp-like material, horse-hairs, bits of thread, feathers, rootlets, and like substances. The nest measures eight centimeters in breadth by five centimeters in depth. The ground work of the eggs is of a light blue-green, the spots, which are numerous and somewhat confluent on the larger end, are of a light brown-lilac color. A few large and solitary spots of dark brown are dispersed sparingly over the greater part of the egg, diminishing in size towards the smaller end. One egg was unfortunately broken; the others measure as follows: $12\frac{1}{2} \times 16$ mm. $12\frac{1}{2} \times 16\frac{1}{2}$ mm, 12×17 mm."

GENUS **PLECTROPHENAX** STEJNEGER.

Plectrophanes KAUP. Entw. Eur. Thierw. 1829, 138 (nec MEYER, 1815). Type, *Emberiza nivalis* LINN.

Plectrophenax STEJN. Proc. U. S. Nat. Mus. v, 1882, 33. Same type.

GEN. CHAR. Bill conical; the lower mandible higher than the upper, the sides of both mandibles guarded by a closely applied brush of stiffened bristly feathers directed forwards, and on the upper jaw concealing the nostrils; the outlines of the bill nearly straight or slightly curved; the lower jaw considerably broader at the base than the upper, and wider than the gonys is long. Tarsi considerably longer than the middle toe; the lateral toes nearly equal (the inner claw largest), and reaching to the base of the middle claw. The hinder claw very long, moderately curved and acute, considerably longer than its toe; the toe and claw together reaching to the middle of the middle claw, or beyond its tip. Wings very long and much pointed, reaching nearly to the end of the tail; the first quill longest; the others rapidly graduated; the tertiaries a little longer than the secondaries. Tail moderate, about two thirds as long as the wings; nearly even, or slightly emarginated.

The two known species of this genus are essentially boreal, one of them, so far as known, being confined to the vicinity of Bering Sea, while the other is quite circumpolar. They are ground birds, collecting in large flocks, in autumn and winter, on tundra and plains, one of the species passing far to the southward. The recently discovered *P. hyperboreus*,* is distinguished by its much whiter coloration, only the tips of the quill-feathers and small spots near the end of the middle tail-feathers being black in the adult male.

Plectrophenax nivalis (Linn.)

SNOWFLAKE.

Popular synonyms. White Snowbird; Snow Bunting.

Emberiza nivalis LINN. S. N. ed. 10, i, 1758, 176; ed. 12, i, 1766 308.—WILS. Am. Orn. iii, 1811, 86, pl. 21, fig. 2.—NUTT. Man. i, 1832, 458.—AUD. Orn. Biog. ii, 1834, 515; v, 496, pl. 189.

Plectrophanes nivalis MEYER.—AUD. Synop. 1839, 99; B. Am. iii, 1841, 55, pl. 155.—BAIRD, P. N. Am. 1858, 432; Cat. N. Am. B. 1859, No. 325.—COUES, Key, 1872, 133; Check List, 1873, No. 152; 2d ed. 1882, No. 219; B. N. W. 1874, 118.—B. & R. Hist. N. Am. B. i, 1874, 512, pl. 24, fig. 2.—RIDGW. Nom. N. Am. B. 1881, No. 186.

Plectrophenax nivalis STEJN. Proc. U. S. Nat. Mus. 1882, 33.

HAB. Northern North America, south in winter, to northern United States (very irregularly beyond 40°, but quoted from Georgia, District of Columbia, Kentucky, Kansas, etc.). Also found throughout the arctic and subarctic portions of the Old World.

"SP. CHAR. Male. Colors, in spring plumage, entirely black and white. Middle of back between scapulars, terminal half of primaries and tertiaries, and two innermost tail-feathers, black; elsewhere pure white. Legs black at all seasons. In winter dress, white beneath; the head and rump yellowish brown, as also some blotches on the side of the breast; middle of back brown, streaked with black; white on wings and tail much more restricted. Length about 6.75; wings, 4.35; tail, 3.65; first quill longest. **Female.** Spring, continuous white beneath only; above entirely streaked, the feathers having blackish centres and whitish edges; the black streaks predominate on the back and crown. **Young.** Light gray above, with obsolete dusky streaks on the back; throat and jugulum paler gray,—the latter with obsolete streaks; rest of lower parts dull white. Wing-coverts, secondaries and tail-feathers broadly edged with light ochraceous brown." (*Hist. N. Am. B.*)

Although the "White Snowbird" or "Snowflake" is said to be an abundant winter resident of the northern portion of the State, it is so very rare in the more southern districts that the writer has seen there but a single specimen, the locality being Mount Carmel, and the date forgotten, but sometime during the early part of 1864 or 1865.

Mr. Nelson's notes on its occurrence in northeastern Illinois (*Bull. Essex Inst.*, Vol. VIII., 1876, p. 105) are as follows:

*See Proc. U. S. Nat. Mus. vii, 1884, 68.

"An abundant winter resident. Arrives in flocks, the first of November, and remains until about the middle of March. The 5th of March, 1875, I saw a flock of these birds in a tree in Chicago. The males were chanting a very low and somewhat broken, but very pleasant, song, bearing considerable resemblance to that of *Spizella monticola*. This and the following species, [*Calcarius lapponicus*], as well as other winter residents, appear a week or more earlier in the fall, and depart later in the spring, in the vicinity of the lake, than in any other parts of the State in the same latitude."

The Snow Bunting breeds throughout the Arctic regions of both continents, the National Museum possessing nests from the most northern point of Alaska (Point Barrow) and from Labrador, as well as from various intermediate localities.

GENUS *CALCARIUS* BECHSTEIN.

Calcarius BECHST. Orn. Taschen. Deutsch. 1803, 130. Type, *Fringilla lapponica* LINN.

GEN. CHAR. Bill small, the gonys very short, with its angle opposite the middle of the culmen; maxilla equal to or exceeding the mandible in depth, the depth of the bill not exceeding the length of the gonys. Middle toe, with claw, shorter than tarsus, the middle claw falling short of that of the hallux. Tail longer than the distance from the carpal joint to the tips of the tertials (except in *C. ornatus*).

The three species of this genus differ considerably in the details of form, but it is probable that these differences are of no more than specific value. Thus *C. ornatus* differs from both *C. pictus* and *C. lapponicus* in having the tail much shorter than the distance from the carpal joint of the wing to the end of the tertials, in which respect it agrees with *Rhynchophanes mccownii*, but this is apparently owing more to the greater development of the secondaries than to a really reduced length of the tail. In the form of the bill, however, it agrees very closely with *C. pictus*, which, as does also that of *C. ornatus*, differs from that of *C. lapponicus* in being more slender and pointed.

The species may be distinguished by the following characters:

COMMON CHARACTERS. Above brown, spotted with black. Male with the crown and other parts of the head black.

A. Outer tail-feathers dusky at the base.

1. *C. lapponicus*. Lower parts dull whitish. *Adult male in summer*: Head and jugulum black, with a broad white supra-auricular stripe; nape bright chestnut-rufous; lesser wing-coverts grayish; middle coverts dusky. *In winter*: Similar, but throat whitish, jugular patch badly defined, head much tinged with ochraceous, and rufous of nape obscured by grayish. *Adult female in summer*: Head mostly dull buffy, the crown with two broad lateral stripes of broad dusky streaks, the

ear-coverts tipped with a dusky bar; a dusky patch on each side of throat and indication of one on the jugulum; nape faintly rufous, streaked with black. *In winter*: Similar, but more suffused with brownish. *Young*: Head, neck, jugulum, and upper parts yellowish fulvous, streaked with black; crown and wings strongly tinged with rufous.

2. *C. pictus*. Lower parts deep buff. *Adult male in summer*: Head black, with lores, centre of ear-coverts, a maxillary and a supra-auricular stripe, white; throat, nape, and entire lower parts deep buff; lesser wing-coverts black, with the last row white. *In winter*: The wing and lower parts similar, but the head without well-defined black, and the white replaced by buff. *Adult female*: Similar to male in winter plumage, but jugulum streaked with dusky, and lesser wing-coverts grayish.

B. Base of outer tail-feathers white.

3. *C. ornatus*. Two outer tail-feathers white to the extreme base, and third with base white. *Adult male*: Nape chestnut-rufous; belly black. *In summer*: Top of head, jugulum, and belly deep black, the latter sometimes tinged with rufous; nape uniform deep chestnut-rufous; all markings sharply contrasted. *In winter*: Top of head streaked with black and fulvous, the rufous of nape and black of lower parts overlaid and nearly concealed by light grayish fulvous tips of feathers. *Adult female*: Entirely light dull buff, the upper parts broadly, and sometimes the breast narrowly, streaked with dusky. *Young*: Above blackish, the feathers bordered with dull whitish; wings dull brownish fulvous; throat white, faintly spotted with dusky; rest of lower part pale dull buff, the breast streaked with dusky.

Calcarius lapponicus (Linn.)

LAPLAND LONGSPUR.

Popular synonym. Brown Snowbird.

Fringilla lapponica LINN. S. N. ed. 12, i, 1766, 317.

Emberiza lapponica NILSS.—NUTT. Man. i, 1832, 463.—AUD. Orn. Biog. iv, 1833, 473, pl. 365.

Emberiza (Plectrophanes) lapponica SV. & RICH. F. B. A. ii, 1831, 248, pl. 48.

Plectrophanes lapponicus SELBY.—AUD. Synop. 1839, 98; B. Am. iii, 1841, 50, pl. 152.—BAIRD, B. N. Am. 1853, 433; Cat. N. Am. B. 1859, No. 326.—COUES, Key, 1872, 133; Check List, 1873, No. 153; 2d ed. 1882, No. 220; B. N. W. 1874, 120.—B. B. & R. Hist. N. Am. B. i, 1874, 515, pl. 24, fig. 7.

Centrophanes lapponicus KAUP, 1829.—RIDGW. Nom. N. Am. B. 1881, No. 187.

Calcarius lapponicus STEJN. Proc. U. S. Nat. Mus. 1882, 33.

HAB. Northern North America, breeding in arctic and subarctic districts, in winter migrating very irregularly, south to or beyond 40° (South Carolina, Kentucky, southern Illinois, northern Texas, New Mexico, Colorado, etc.); very rare in Middle Province, and not recorded from Pacific Province.

"SP. CHAR. *Male*. Head all round, and neck, black, extending on the jugulum in a crescentic patch; a broad line from above and behind the eye, sides of neck, a patch in the black of hind head, and whole under parts, white; the sides of body streaked broadly with black. A broad half-collar of chestnut on back of neck, separated from the hood narrowly, and from the auriculars and throat broadly, by the white stripe from the eye. Above brownish black, the feathers sharply edged with brownish yellow. Outer tail-feathers white, except the basal portion of inner web, and a shaft streak at end; next feather with a white streak in end, rest black. Legs black; bill yellow, tipped with black. *In winter plumage* the black and other markings overlaid by rusty and fulvous; beneath whitish. *Female* with the black feathers of head edged with yellowish rusty; the throat white, bordered on the sides and behind by blackish; feathers edged with grayish white, the rufous of nape obscure, and streaked with blackish. Length of male, 6.25; wing, 3.90; tail, 2.80.

"Autumnal specimens, of both sexes, differ in having the pattern of coloration obscured by ochraceous borders to the feathers, and a general rusty cast to the plumage." (*Hist. N. Am. B.*)

This species occurs throughout the State in winter. During severe weather I have seen large flocks at Mount Carmel, flitting in a restless manner over the snow, uttering all the while a peculiar rattling chirrup; and on other occasions, I have observed individuals mixed in with flocks of Shore Larks.

The Lapland Longspur, like the Snow Bunting, breeds in the arctic regions of both continents. The male is said to be a sweet songster, often singing while on the wing.

***Calcarius pictus* (Swains.)**

SMITH'S LONGSPUR.

Popular synonyms. Painted Longspur; Smith's Bunting.

Emberiza (Plectrophanes) picta Sw. & Rich. F. B. A. ii, 1831, 250, pl. 49.

Emberiza picta Aud. Orn. Biog. v, 1839, 91, pl. 400.

Plectrophanes pictus Bp. 1838.—Aud. Synop, 1839, 99; B. Am. iii, 1841, 52, pl. 153.—BAIRD,

B. N. Am. 1858, 434; Cat. N. Am. B. 1859, No. 327.—COUES, Key, 1872, 131; Check List,

1873, No. 134; B. N. W. 1874, 121.—B. B. & R. Hist. N. Am. B. i, 1874, 518, pl. 24, figs. 4, 5.

Centrophanes pictus Cab. 1851.—RIDGW. Nom. N. Am. B. 1881, No. 188.

Calcarius pictus STEJN. Proc. U. S. Nat. Mus. 1882, 33.

Emberiza smithii Aud. B. Am. vii, 1844, 337, pl. 487.

HAB. Great interior plains of North America, breeding from the Yukon, Mackenzie River, and Slave Lake districts for an undetermined distance southward, and migrating in winter to the prairies of the Mississippi Valley and as far south as northwestern Texas.

"SP. CHAR. *Male.* Spring. Top and sides of head black. A line from bill over the eye, lores, lower and posterior border of the black cheeks, ears, (encircled by black), and a small patch in the nape, white. Entire under parts, and extending round neck to nape (where it bounds abruptly the black of head), buff or light cinnamon-yellow; the under tail-coverts paler; the inside of wings, white. Feathers of upper surface black, edged with yellowish gray; shoulders or lesser coverts and the greater, black; middle white, forming a conspicuous patch. Quills edged externally with white, this involving the whole outer web of outermost primary. Whole of outer and most of second tail-feathers white. Bill dusky; lower mandible and legs yellowish. Length, 5.50; wing, 3.50; tail, 2.75; bill, .45.

"Female. The markings of male faintly indicated, but the black and buff wanting. Head above brown, streaked centrally with paler. A narrow dark line on each side the throat, and brownish streaks across the jugulum, and along sides of body. Traces visible of the white marks of the head. Bill and feet as in the male."

"This species is quite similar in form to *P. lapponicus*, although with slenderer bill, and perhaps longer hind claw. While the colors of adult males are very different, the females have a decided resemblance; they may, however, be distinguished in all stages by

the black or dusky legs of *lapponicus* and the yellow of *pictus*, and perhaps by the more dusky upper mandibles of the latter." (*Hist. N. Am. B.*)

Like the Lapland Longspur, this species is only a winter visitor to Illinois. It is by no means so generally distributed as that species, its migrations being almost wholly confined to the open prairie districts.

"Mr. Audubon, in company with Mr. Harris and Mr. Bell, obtained specimens of these birds near Edwardsville, and described them as a new species [*Plectrophanes smithii*]. Mr. Bell states, in regard to these birds, that he found them very abundant on the low prairie near a lake, a few miles from Edwardsville. They were generally in large flocks, and when once on the ground they began to separate. They ran very nimbly, in a manner resembling that of the Grass Finch, and when they arose, which they rarely did unless they were nearly approached, they uttered a sharp click, repeated several times in quick succession, and moved with an easy undulating motion for a short distance and then alighted very suddenly, seeming to fall perpendicularly several feet to the ground. They preferred the roots where the grass was shortest. When in the air they flew in circles, to and fro, for a few minutes, and then alighted, keeping up a constant chirping or call, somewhat like that of the Red-Poll." (BREWER.)

Mr. Nelson records the following regarding his observations on this species in the northwestern portions of the State:

"Common migrant. March 30, 1875, near Calumet Lake, I found a flock containing about seventy-five individuals of this species. Their habits are quite similar to those of *P. lapponicus* while upon the ground, except that while the latter species preferred the wet portions of the prairie, the former were found only about the higher portions. When flushed they invariably uttered a sharp clicking note, rapidly repeated several times. When driven from their feeding place by my approach, they would rise, in a loose flock, and after wheeling about a few times start off in a direct line, gradually rising higher until they disappeared. After a short time their peculiar note would be heard, and darting down from a considerable height they would alight near the place from which they were driven. Although the flocks of *P. pictus* and *P. lapponicus* often became mingled while flying over the prairie, I did not see them alight together."

The breeding range of this species is much more restricted than that of *C. lapponicus*, being confined to the interior of Arctic America, chiefly in the basin of Mackenzie and Anderson rivers, including the region about the Great Bear and Great Slave lakes. In fact, it is emphatically a bird of the great interior valleys of the continent, between the Rocky Mountains on the one side and the Atlantic forest region on the other.

GENUS **RHYNCHOPHANES** BAIRD.

Rhynchophanes BAIRD, Birds N. Am. 1858, 432. Type, *Plectrophanes mccownii* LAWR.

GEN. CHAR. Bill stout, conical, the gonys longer than the hind toe, with its angle considerably posterior to the middle of the bill. Maxilla equal to the mandible in depth; mandibular tomium forming a decided angle at the base. Middle toe, with claw, shorter than tarsus, the claw reaching beyond that of the hallux. Tail decidedly shorter than the distance from the carpal joint of the wing to the tips of the tertials.

In the form of the bill of this well-marked genus there is nothing to indicate its near affinity to the genera *Plectrophenax* and *Calcarius*; but in other parts of its organization it evidently approaches much nearer to these forms than any other. The bill is wonderfully similar to that of *Calamospiza*, the only conspicuous difference being its considerably narrower form,—particularly the mandible, as compared with the maxilla. The lateral, as well as the vertical, outlines are very nearly the same, even to the well-marked angle at the base of the mandibular tomium. In other characters, however, the two genera are so different as to warrant their assignment to distinct groups, or subfamilies.

The genus *Rhynchophanes* contains a single species, peculiar to the interior of North America.

Rhynchophanes mccownii (Lawr.)

McCOWN'S LONGSPUR.

Popular synonym. McCown's Bunting.

Plectrophanes mccownii LAWR. Ann. Lyc. N. Y. vi, 1851, 122.—BAIRD, B. N. Am. 437; Cat. N. Am. B. 1859, No. 330.—COUES, Key, 1872, 134; Check List, 1873, No. 156; B. N. W. 1874, 124.—B. B. & R. Hist. N. Am. B. i, 1874, 523, pl. 24, fig. 1.

Rhynchophanes mccowni BAIRD.—RIDGW. Nom. N. Am. B. 1881, No. 190.

HAB. Great Plains of the United States, breeding northward (in Dakota, Wyoming, etc.) and migrating south in winter through Colorado, Kansas, Texas, New Mexico, and Arizona, to northern Mexico; occasional winter visitor to prairies of Illinois.

"*SP. CHAE. Male in spring.* Top of head, a broad stripe each side the throat from lower mandible, and a broad crescent on jugulum, black; side of head including lores and band above the eye, throat, and under parts, ashy white; ear-coverts bordered above and behind by blackish, running out at the maxillary stripe. Breast just behind the black crescent and sides, showing dark bases of feathers. Upper parts ashy, tinged with yellowish on the mandible, and streaked with dusky; least so on nape and rump. Lesser wing-coverts ashy; median, chestnut-brown, with blackish bases sometimes evident; the quills all bordered broadly externally with whitish, becoming more ashy on secondaries. Tail-feathers white except at the concealed bases and the ends, which have a transverse (not oblique) tip of blackish; the outermost white to the end; the two central like the back." Bill dark plumbeous; legs blackish. In winter, the markings more or less obscured; the bill and legs more yellowish.

"*Female* lacks the black markings, which, however, are indicated obsoletely as in other *Plectrophanes*: there is no trace of chestnut on the wings, nor the streaks on the breast. Length, 5.50; wing, 3.60; tail, 2.50; bill, .46.

"This species varies considerably in markings, but is readily recognized among other *Plectrophanes* in all stages by short hind toe, very stout bill, and the transverse dark bar at the end of all tail-feathers except the inner and outer. (*Hist. N. Am. B.*)

McCown's Longspur is one of several very peculiar birds which together characterize the avi-fauna of the Great Plains of North America, its more prominent associates in this distinction being the Lark Bunting (*Calamospiza melanocorys*), Chestnut-collared Longspur (*Calcarius ornatus*), Baird's Bunting (*Centronyx bairdii*), Clay-colored Sparrow (*Spizella pallida*), Leconte's Sparrow (*Coturniculus lecontei*), and Harris's Sparrow (*Zonotrichia querula*). These, together with the subject of the present article, and a few species not named, characterize a Campestrian Province, which, so far as its avian fauna is concerned, is even more distinct from the Middle Province than is the Pacific Province.*

McCown's Longspur is an abundant species during summer on the great plains of Dakota, Montana, and Wyoming, to the northward and southward of which its breeding range extends for an undetermined distance. In winter it migrates south to the prairies and plains of Texas, New Mexico, and Arizona, as well as to the tablelands of Mexico. In Illinois it is, so far as known, merely a straggler during its migrations, or in winter, three specimens having been taken in January, 1877, at Champaign, Champaign county, as announced by Mr. H. K. Coale in the "Nuttall Bulletin" for April, 1877, p. 52.

*Writers on the zoö-geographical divisions of North America have almost all divided the continent into three "Provinces;" viz., an Eastern, a Middle, and a Pacific. These divisions seem to me untenable, however, and I would allow only two primary longitudinal divisions; an Eastern and a Western, the latter with three subdivisions, which may be termed, respectively, the Pacific, the Rocky Mountain (or Middle), and the Campestrian districts.

SUBFAMILY PASSERINÆ.

"The introduction into the United States at so many distant points, of the European House Sparrow (*Pyrgita domestica*) renders it necessary to introduce it with any work treating of the birds of North America, although totally different in so many features from our own native forms. * * * In some respects similar to certain *Coccothraustinæ*, in the short tarsi and covered nostrils, the wings are shorter and more rounded, the sides of the bill with stiff bristles, etc. The much longer, more vaulted bill, weaker feet, and covered nostrils, distinguish it from *Spizellinæ*." (*Hist. N. Am. B.*)

GENUS PASSER BRISSON.

Passer BRISSON, Orn. iii, 1700, 72. Type, *Fringilla domestica* LINN.

"Gen. CHAR. Bill robust, swollen, without any distinct ridge; upper and under outlines curved; margins inflexed; palate vaulted, without any knob; nostrils covered by sparse, short, incumbent feathers; side of bill with stiff, appressed bristles. Tarsi short and stout, about equal to or shorter than the middle toes; claws short, stout, and considerably curved. Wings longer than tail; somewhat pointed. Tail nearly even, emarginated, and slightly rounded." (*Hist. N. Am. B.*)

Passer domesticus (Linn.,

EUROPEAN HOUSE-SPARROW.

Popular synonyms. English Sparrow; European Sparrow; House Sparrow.

Fringilla domestica LINN. S. N. ed. 10, i, 1758, 183; ed. 12, i, 1766, 323.

Passer domesticus SCHAEFF. Mus. Or. 1789, 21.—COUES, Key, 1872, 146; 2d ed. 1884, 344; Check List, 1873, No. 187; 2d ed. 1882, No. 192.

Pyrgita domestica CUV. Règ. An. 2d ed. i, 1729, 439.—B. B. & R. Hist. N. Am. B. i, 1874, 525, pl. 23, fig. 12.

HAB. Whole of Palearctic Region. Introduced into and naturalized in North America, Australia, and other countries.

"**Sp. CHAR.** *Male.* Above chestnut-brown; the interscapular feathers streaked with black on inner webs; the top of head and nape, lower back, rump, and tail-coverts, plain ashy; narrow frontal line, lores, chin, throat, and jugulum black; rest of under parts grayish, nearly white along median region. A broad chestnut-brown stripe from behind eye, running into the chestnut of back; cheeks and sides of neck white; outside of closed wing, pale chestnut-brown, with a broad white band on the middle coverts, and behind showing the brown quills; the lesser coverts dark chestnut, like the head stripe. Tail dark brown, edged with pale chestnut. Bill black; feet reddish; iris brown.

"*Female.* Duller of color, and lacking the black of face and throat; breast and abdomen reddish ash; cheeks ashy; a yellow-ochre band above and behind the eyes, and across the wings. Head and neck above brownish ash; body above reddish ash, streaked longitudinally with black.

"*Male in winter.* The colors generally less distinct. Length, 6.00; wing, 2.85; tail, 2.50; tarsus, .70; middle toe and claw, .60.

"The House Sparrow of Europe has been introduced into so many parts of the United States as to render it probable that at no distant day it will have become one of our most familiar species. Brought over to the New World within a comparatively few years, it has commenced to multiply about the larger cities, especially in the environs of New York, as also about Portland, Boston, Newark, and Philadelphia * * * One thousand birds were let loose in the public squares of Philadelphia in the spring of 1869." (*Hist. N. Am. B.*, 1874.)

Concerning this unmitigated pest we have little to say, further than to bewail the misfortune of its introduction, and to plead for its extermination. It is in every respect a first-class nuisance, to be classed along with the house-rat and other noxious vermin.

SUBFAMILY SPIZELLINÆ.—THE AMERICAN SPARROWS.

CHAR. Bill variable, usually almost straight; sometimes curved. Commissure generally nearly straight, or slightly concave. Upper mandible wider than lower. Nostrils exposed. Wings moderate; the outer primaries not much rounded. Tail variable. Feet large; tarsi mostly longer than the middle toe.

The species are usually small, and of dull color, though frequently handsomely marked. Nearly all are streaked on the back and crown, often on the belly. None of the United States species have any red, blue, or orange, and the yellow, when present, is as a superciliary streak, or on the elbow edge of the wing.

In the arrangement of this subfamily, as of the others belonging to the *Fringillidæ*, we do not profess to give anything like a natural system, but merely an attempt at a convenient artificial scheme by which the determination of the genera may be facilitated.

A. Tail small and short, considerably or decidedly shorter than the wings, owing either to the elongation of the wing or the shortening of the tail. Lateral toes shorter than the middle without the claws. Species streaked above and below. (*Ammodramææ*.)

Ammodramus. Tarsus not longer than middle toe, with claw. No white outer tail-feathers.

a. Subgenus *Ammodramus*. Bill slender, the depth at the base less than half the culmen. Tail graduated, the feathers acute. Outstretched feet reaching to or beyond tip of tail.

b. Subgenus *Coturniculus*. Bill stouter, the depth at base more than half the culmen (except in *C. lecontei*). Tail graduated or double-rounded, the feathers narrow and acute. Outstretched feet falling short of tip of tail.

- d. Subgenus *Centronyx*. Tail deeply emarginate, two and a half times as long as the tarsus, the feathers narrow and attenuated, as in *Coturniculus*. Hind claw nearly or quite as long as its digit.
- e. Subgenus *Passereulus*. Tail slightly emarginate, three times as long as the tarsus, the feathers broad and scarcely attenuate, though acute at tips. Hind claw shorter than its digit.

Pooecætes. Tarsus longer than middle toe, with claw. Outer tail-feathers partly white.

- B.** Tail longer and broader; nearly or quite as long as, sometimes a very little longer than, the wings, which are rather lengthened. The primaries considerably longer than the secondaries. None of the species streaked beneath, when adult, and only the back and crown, or back alone, streaked above. (*Spizelleæ*.)

- a. Tail rounded or slightly graduated.

Chondestes. Tail considerably graduated. Lateral toes considerably shorter than the middle toe, without its claw. Wings very long, decidedly longer than the tail, reaching the middle of the tail. First quill longest. Head broadly striped with chestnut. Back streaked. White beneath. A white blotch on the end of the tail-feathers.

Zonotrichia. Tail rounded. Wings moderate, about as long as the tail, reaching about over the basal fourth of the tail; first quill less than the second to fourth. Feet large. Head striped with black and white or with brown and ochraceous. Back streaked.

Junco. Tail very nearly equal to the wings, slightly double-rounded. Outer toe rather longer than inner, reaching the middle claw. No streaks anywhere except in young; black or ash-color above; belly white; with or without a rufous back and sides. Outer tail-feathers white.

Amphispiza. Tail lengthened, rounded or slightly graduated; the feathers unusually broad to the end. Bill slender. Wings about as long as the tail, reaching but little beyond its external base. Tertials broad, and, with the secondaries, rather lengthened. Second to fifth quills nearly equal, and longest. Tail black. Ashy brown above; white beneath. Sides of head with stripes of black or grayish and white.

- b. Tail decidedly forked; a little shorter than the wing, sometimes a little longer.

Spizella. Size rather small. Wings long. Lower mandible largest. Uniform beneath, or with a pectoral spot or the chin black.

- C.** Tail lengthened and graduated; decidedly longer than the wings, which are very short, scarcely extending beyond the external base of the tail. Feet reaching but little beyond the middle of the tail. Species all streaked above; streaked or nearly unicolor beneath. No white on wings or tail. Outer lateral toe the longer. First quill not the shortest of the primaries. (*Melospizææ*.)

Melospiza. Culmen and commissure nearly straight. Claws stout; hinder one as large as its digit. Tail-feathers rather broad. Body streaked beneath (except in *M. georgiana*).

Peucaea. Culmen and commissure curved. Claws weak; hinder one not much curved, decidedly shorter than its digit. Tail-feathers narrow. Without streaks beneath, excepting a narrow submaxillary stripe.

- D.** Tail rather short, and much graduated; longer than the wings; the midrib more median. Culmen curved. Tarsus considerably longer than middle toe. Outer toe longer. But little difference in the length of the quills; the outer ones much rounded; even the second quill is shorter than any other primary except the first. (*Embernagææ*.)

Embernagra. Color, plain olive-green above.

GENUS **AMMODRAMUS** SWAINSON.SUBGENUS **Ammodramus**.

Ammodramus SWAINSON, Zool. Jour. iii, 1827, 348. Type, *Oriolus caudacutus* GMEL.

"GEN. CHAR. Bill very long, slender, and attenuated, considerably curved towards the tip above. The gonys straight. A decided lobe in middle of cutting edge of upper bill. The legs and toes are very long and reach considerably beyond the tip of the short tail. The tarsus is about equal to the elongated middle toe; the lateral toes equal, their claws falling considerably short of the base of the middle one; the hind claw equal to the lateral one. Wings short, reaching only to the base of the tail; much rounded; the secondaries and tertiaries equal, and not much shorter than the primaries. The tail is rather shorter than the wings, and graduated laterally; each feather stiffened, lanceolate, and acute.

"Color. Streaked above and across the breast; very faintly on the sides.

"The essential characters consist in the slender and elongated bill; the long legs reaching considerably beyond the tail, with the lateral claws falling considerably short of the middle one; and the very short rounded wings, rather longer than the cuneate tail, with its stiffened and lanceolate feathers." (*Hist. N. Am. B.*)

Only one of the three known species of this genus has been taken in Illinois. In view, however, of the possible occurrence of a second (*A. maritimus*), its characters, together with those of the other, are given in the following synopsis:

COMMON CHARACTERS. Above olivaceous or ashy, the crown washed with brown laterally, the dorsal feathers darker centrally; beneath white, tinged across the jugulum with ochraceous or ashy; jugulum streaked; a dusky "bridle" on each side of the throat, above it a malar stripe of ochraceous or white.

1. *A. caudacutus*. *Adult*: Above mixed olive, gray, and brown; the outer webs of back feathers edged with olivish gray or whitish, and often with darker streaks; crown usually with a brown suffusion, and streaked with black laterally. Superciliary stripe, maxillary stripe, and whole jugulum, ochraceous, the latter more or less streaked; abdomen unstreaked white; edge of wing light yellow. *Young*: Above fulvous brown and ochraceous, streaked with black; crown mostly black, with a median stripe of fulvous streaks. Beneath entirely ochraceous, the sides of the jugulum streaked.

α. caudacutus. Wing, 2.20-2.40; tail, 2.15-2.40; bill, .30-.35. Atlantic seacoast, from Florida to Maine.

β. nelsoni. Wing, 2.10; tail, 2.05; bill, .30. Bill more slender; colors much deeper, and markings much better defined. Fresh water marshes of United States, chiefly in Mississippi Valley.

2. *A. maritimus*. Above olivaceous gray, with ashy gloss on the back; beneath grayish white, very indistinctly streaked on the jugulum and sides of breast with grayish; edge of wing, and supraloral stripe gamboge-yellow. Wing, 2.30-2.65; tail, 2.35-2.65.

Ammodramus caudacutus nelsoni* (Allen).*NELSON'S SPARROW.**

Popular synonym. Nelson's Sharp-tailed Finch.

Ammodromus caudacutus var. *nelsoni* ALLEN, Proc. Boston Soc. xvii, March, 1875, 93.—

NELSON, Bull. Essex Inst. viii, 1876, 107, 152; Bull. Nutt. Orn. Club, July, 1876 40.

Ammodromus caudacutus nelsoni RIDGW. Nom. N. Am. B. 1881, No. 291a.—COUES, 2d Check List, 1882, No. 241; 2d Key, 1884, 308.

HAB. Mississippi Valley (Calumet marshes, and vicinity of Warsaw, Illinois; eastern Kansas, etc.); salt marshes of Atlantic coast during migrations.

SP. CHAR. *Adult.* Pileum bluish gray or olive-gray medially, umber-brown laterally, the lateral stripes more or less streaked with black. A broad superciliary stripe deep ochraceous, connected behind the auriculars with a broad maxillary stripe of the same color. Auriculars grayish, with a dusky line along upper edge, connecting with a distinct black streak beneath hinder part of the ochraceous superciliary stripe. Scapulars and interscapulars bright olive-brown, the outer webs broadly edged with grayish white, separated from the brown by a blackish line. Tertials dusky, bordered with rusty whitish or pale rusty. Rump uniform olive-brown. Rectrices light raw-umber-brown, darker along shafts. Chin, throat, breast, sides, flanks, and crissum ochraceous, the jugulum, breast, sides, and flanks streaked with dusky. Wing, 2.20-2.30; tail, 1.95-2.10.

This inland race differs from the coast form principally in its somewhat smaller size (the bill especially) and brighter coloration, the colors being richer and the markings more sharply contrasted.

So little is known either of its habits or distribution, that all the information we have to offer is the following, from Mr. Nelson's list of the birds of northwestern Illinois. (*Bull. Essex Inst.*, Vol. VIII., 1876, p. 107):

"First obtained September 17, 1874, in the Calumet Marsh, where it was abundant at the time. The 12th of June, 1875, I saw several of these birds in the dense grass bordering Calumet Lake, where they were undoubtedly breeding. The 1st of October, 1875, I again found them abundant on the Calumet Marsh, and also found them numerous in the wild rice bordering Grass Lake, Lake county, Illinois, the 10th of November the same year. Prof. S. A. Forbes has taken them on the Illinois River during the migrations, and Dr. Hoy has obtained a single specimen at Racine. From the numbers which visit us in the fall, they must breed in abundance north of this State. They are difficult to obtain, as they take refuge in the dense marsh grass upon the first alarm. Occasionally one mounts a tall reed and utters a short, unmusical song, slightly resembling that of the Swamp Sparrow (*M. palustris*)."

SUBGENUS *Coturniculus* BONAPARTE.

Coturniculus BONAP. Geog. and Comp. List, 1838, 32. Type, *Fringilla passerina* WILS.

"GEN. CHAR. Bill very large and stout (except in *C. lecontei*); the under mandible broader, but lower than the upper, which is decidedly convex at the basal portion of its upper outline. Legs moderate, apparently not reaching to the end of the tail. The tarsus appreciably longer than the middle toe; the lateral toes equal, and with their claws falling decidedly short of the middle claw; the hind toe intermediate between the two. The wings are short and rounded, reaching to the base of the tail; the tertiaries almost as long as the primaries; not much difference in length in the primaries, although the outer three or four are slightly graduated. The tail is short and narrow, shorter than the wing (except in *C. lecontei*), graduated laterally, but slightly emarginate; the feathers all lanceolate and acute, but not stiffened, as in *Ammodramus*.

"This genus agrees with *Passerculus* in the short and narrow tail. The wings are much shorter, and more rounded; the feet shorter, especially the middle toe, which is not as long as the tarsus. The tail-feathers are more lanceolate. The bill is much longer, and more swollen at the base.

"The essential characters * * * consist in the swollen convex bill; the short toes, compared with the tarsus; the short and rounded wings; and the very small, narrow, slightly graduated tail, with its lanceolate, acute feathers (except in the South American *C. manimbe*).

"In some respects there is a resemblance to *Ammodramus*, in which, however, the bill is very much more slender; the wings are shorter, and more rounded; the tail feathers much stiffer, and even more lanceolate; the toes extending beyond the tip of the tail; the middle toe rather longer than the tarsus, instead of considerably shorter."

"*C. lecontei* has the same general form, but a much smaller bill." (*Hist. N. Am. B.*)

The three North American species differ very strikingly from one another in form, and may be readily distinguished by proportions alone, as follows:

- a. Tail much shorter than the wing, double-rounded. Primaries extending beyond the tips of the largest tertials for about .40 of an inch.
 1. *C. passerinus*. Bill stout, the culmen slightly depressed in the middle portion. Wing about 2.50; tail, 1.90; culmen, .50; depth of bill, .25; tarsus, .80.
- b. Tail about equal to, or even longer than the wing, graduated. Primaries extending very little beyond tips of longest tertials.
 2. *C. henslowi*. Bill very stout, the culmen not depressed in the middle. Wing about 2.15; tail, 2.10; culmen, .50; depth of bill, .30; tarsus, .70.
 3. *C. lecontei*. Bill very small and slender, the culmen depressed in the middle portion. Wing about 2.10; tail, 2.30; culmen, .45; depth of bill, .20; tarsus, .65.

By coloration; they may be distinguished as follows:

COMMON CHARACTERS. Crown and back streaked with black upon an ashy, olive, or chestnut ground; beneath whitish, tinged across the breast with ochraceous or ashy, plain, or with blackish streaks on the breast. A light superciliary stripe.

A. A dusky streak on each side of the light malar stripe.

1. **C. henslowi.** Bill very robust, .28-.32 from nostril and .25-.28 deep at base. *Adult:* Head grayish ochraceous, lighter beneath; a stripe of black streaks on each side of the crown; also a post-auricular black streak, and a less distinct black streak on each side of the lighter malar stripe; breast streaked with black.

B. No dusky streak on either side of light malar stripe.

2. **C. lecontei.** Bill very narrow (much as in *Ammodramus caudacutus*), .25-.30 from nostril and .20 deep at base. *Adult:* Head fine buff, the auriculars, lores, and posterior two thirds of the middle stripe on the crown, grayish white; a black stripe on each side of crown; sides (but not breast) streaked with black. *Young:* above ochraceous, with broad streaks of black on the back; medial stripe of crown entirely buff; beneath white, the jugulum buffy, narrowly streaked with dusky.
3. **C. passerinus.** Bill robust, .28-.32 from nostril, and .25-.30 deep. *Adult:* Head, throat, jugulum, and sides ochraceous buff; edge of wing gamboge-yellow; a yellow spot above the lore; no streaks on jugulum on sides. Crown chestnut-brown or black, divided by a medial, narrower stripe of buff or pale gray. *Young:* Superciliary and middle crown stripes pale grayish; beneath pale buffy; the jugulum streaked with dusky; no distinct yellow on lore or edge of wing.

***Ammodramus savannarum passerinus* (Wils.)**

GRASSHOPPER SPARROW.

Popular synonyms. Yellow-winged Sparrow; Grass-bird; Ground-bird; Grasshopper-bird.

Fringilla passerina WILS. Am. Orn. iii, 1811, 76, pl. 26, fig. 5.—AUD. Orn. Biog. ii, 1834, 180; v, 1839, 497, pl. 130.

Emberiza passerina AUD. Synop. 1839, 103; B. Am. iii, 1842, 73, pl. 162.

Coturniculus passerinus BONAP. 1838.—BAIRD, B. N. Am. 1858, 450; Cat. N. Am. B. 1859, No. 338.—COUES, Key, 1872, 137; Check List, 1873, No. 162; 2d ed. 1882, No. 234; B. N. W. 1874, 131.—B. & R. Hist. N. Am. B. i, 1874, 553, pl. 25, fig. 4.—RIDGW. Nom. N. Am. B. 1881, No. 198.

Fringilla savannarum GMEL.—NUTT. Man. i, 1832, 494; 2d ed. i, 1840, 570.

HAB. Eastern United States, breeding throughout, but wintering in Southern States, Cuba, Porto Rico, eastern Mexico, and south to Costa Rica.

"SP. CHAR. Feathers of the upper parts brownish rufous or chestnut-brown, margined narrowly and abruptly with ash-color; reddest on the lower part of the back and rump; the feathers all abruptly black in the central portion; this color visible on the interscapular region, where the rufous is more restricted. Crown blackish, with a central and superciliary stripe of yellowish tinged with brown, brightest in front of the eye. Bend of the wing bright yellow, lesser coverts tinged with greenish yellow. Quills and tail-feathers edged with whitish; tertiaries much variegated. Lower parts brownish yellow or buff, nearly white on the middle of the belly, darkest on the jugulum. The feathers of the upper breast and sides of the body with obsoletely darker centres, these sometimes wanting. Sides of breast against bend of wing with a few black streaks, usually concealed. Length about 5 inches; wing, 2.40; tail, 2.00.

"The young of this species has the jugulum and sides of the breast streaked with black, much more distinct than in the adult,

and exhibiting a slight resemblance to *C. henslowi*. The upper parts are less varied.

"Specimens from the Far West have the bill more slender, the reddish of the back considerably paler, the dark markings of the back restricted, the light stripe on the head with scarcely any yellow, a decided spot in front of the eye quite yellow, and little or no ochraceous on the breast.

"The young bird, with streaked jugulum, may be most readily distinguished from *C. henslowi* by the grayer plumage without any shade of chestnut or greenish yellow, the sparseness of streaks on the side, the absence of the two mandibular dusky stripes, and the broad dusky centres of the middle tail-feathers." (*Hist. N. Am. B.*)

This little bird is abundant in all cultivated portions of the State, as well as on the open prairie. To the rural population it is known as the "Grass-bird," "Ground-bird," or "Grasshopper-bird," the latter appellation being derived from its grasshopper-like song, which it utters from the end of a fence-stake, the top of a tall weed-stalk, or as it sits upon the summit of a haycock in the meadow. The greater portion of its time is passed in the grass, in which it runs from the intruder, unseen, like a mouse; or, if pressed too closely, rises suddenly and flies a greater or less distance in a zigzag manner, exceedingly provoking to the collector, who finds it a difficult mark to hit.

***Ammodramus henslowii* (Aud.)**

HENSLOW'S SPARROW.

Popular synonym. Henslow's Bunting.

Emberiza henslowi AUD. Orn. Biog. i, 1831, 360; v, 1839, 498, pl. 77; Synop. 1839, 104; B. Am. iii, 1841, 75, pl. 163.

Fringilla henslowi NUTT. Man. 2d ed. i, 1840, 571.

Coturniculus henslowi BP. 1838.—BAIRD, B. N. Am. 1858, 451; Cat. N. Am. B. 1859, No. 339.

—COUES, Key, 1872, 137; Check List, 1873, No. 163; 2d ed. 1882, No. 236; B. N. W. 1874, 133 ("*henslowii*").—B. B. & R. Hist. N. Am. B. i, 1874, 550, pl. 25, fig. 5.—RIDGW. Nom. N. Am. B. 1881, No. 199.

HAB. Eastern United States, breeding north to Massachusetts, northern Illinois, etc.; winters in Southern States. West to Loup Fork of the Platte.

"SP. CHAR. Upper parts yellowish brown, the hood, neck, and upper parts of back tinged with greenish yellow. Interscapular feathers dark brown, suffused externally with bright brownish red; each feather with grayish borders. Tertiaries, rump and tail-feathers abruptly dark chestnut-brown, darkest centrally, paler externally, and narrowly margined with gray. Crown with a broad, black-spotted stripe on each side; these spots continued down to the back. Two narrow black mandibular stripes and one postocular on each side of the head, and an obscure black crescent or spot behind the auriculars.

Under parts light brownish yellow, paler on the throat and abdomen. The jugulum, upper part of the breast, and the sides of the body conspicuously streaked with black. Edge of wing yellow. A strong tinge of pale chestnut on the wings and tail. The median tail-feathers and upper coverts chestnut or rufous brown, with sharply defined shaft-streaks of black. Length, 5.25; wing, 2.15; tail, 2.15." (*Hist. N. Am. B.*)

This species is related to *C. passerinus*, but readily distinguished by the well-marked streaks on breast and sides, the greenish yellow, not chestnut-brown, of head and nape, and the two mandibular dusky stripes. The middle tail-feathers are reddish with only a very narrow sharply defined median shaft-streak of black, instead of having the greater portion of the centre dusky with scalloped edges.

Henslow's Sparrow is an exceedingly common or even abundant species in Illinois, but is much more local than its relative, the Yellow-winged Sparrow. The writer first met with it on Fox Prairie, Richland county, in June, 1871, having his attention attracted to it by its peculiar note. It was very abundant, the males being perched on tall weed-stalks, uttering incessantly their rude and feeble, but emphatic "song" sounding like *pil'lut*, or *sé'wick*, the head being thrown back and the tail inclining forward underneath the bird, in the manner of *C. passerinus*. Twelve years later it was exceedingly numerous on the small remaining patch of open prairie (160 acres in extent) in the same locality, and also in a similar bit of prairie of equal extent which marked the last vestige of the once extensive but since populous and well-cultivated Sugar Creek Prairie, several miles to the southeast.

These birds lie very close, allowing themselves to be almost trodden on before flying; and, notwithstanding a very large number of females were shot which had evidently been startled from their nests, only one nest could be found. They had probably run some distance through the grass before flying, thus rendering search fruitless.

Mr. Nelson states that in Cook county it is a rather common resident on the prairies, arriving May 12 to 20, and leaving the first of September. In Richland county the writer found it exceedingly numerous during the latter part of October, 1882, in company with smaller numbers of *C. lecontei*, inhabiting the dead grass in the damper portions of the meadows. Mr. H. K. Coale writes me that he found it to be a common summer resident in a certain piece of wet prairie overgrown with bushes at Toleston, Lake county, Indiana.

During the summer of 1879, the writer found this species to be very common in Fairfax county, Virginia, about five miles from Washington. Walking along the road at dusk, a few stars having already made their appearance, he was surprised to hear the peculiar note which he had last heard on Fox Prairie, eight years previously. Soon numbers were heard on every hand, the locality being a rather narrow valley between low hills, the lower ground being chiefly damp meadow-land. Returning a few days after with a friend, several of the birds were secured. A nest found in this locality the following summer is thus described by Mr. P. L. Jouy, of Washington, in the "Nuttall Bulletin" for January, 1881, pp. 57, 58:

"Nest rather rude and irregularly shaped, composed externally of coarse grass, lined with exceedingly fine grass-tops circularly disposed and well finished, but without any horse-hair; no other material than grass was used in its construction. The nest is about four inches in diameter, about two inches in height, and two inches inside diameter; it was placed in the centre of a large clump of wild clover (*Trifolium agrarium*), and rested directly on the ground without any appearance of a cavity. The clover had grown up about a foot or more in height and completely surrounded the nest, which was only discovered by parting it. The female was secured as she flew from the nest. The eggs, four in number, are much blotched and speckled all over with a mixture of madder-brown and sepia, the color becoming more confluent on the larger end; there are also a few dashes and dots of very dark sepia, almost black, scattered among the spots. One of the eggs has a number of large blotches of a lighter tint than the spots scattered all over it so as to almost form a ground tint for the spots. The ground color is a delicate greenish white. The measurements, in hundredths of inches, are as follows: $.75 \times .60$, $.75 \times .58$, $.75 \times .56$, $.75 \times .60$. The eggs, taken June 3, contained large embryos within four or five days of hatching. As I took full-fledged young last year on the 12th of July, they undoubtedly raise two broods in a season.

"The above described nest and eggs were taken in the locality where Mr. Ridgway found the birds last year (see this Bulletin, Vol. IV., p. 238), near Falls Church, Fairfax Co., Va. They are more or less common in all suitable places, probably a dozen pairs breeding in this and the adjoining meadows.

"Since writing the above, two fully-fledged young birds have been taken (June 6) in the same place. The birds have been also seen

and heard singing at Ball's Cross Roads, in Virginia, about two miles nearer the District than the other locality. Besides the characteristic note of *see-weck*, they have quite a song, which may fairly be represented by the syllables *sis-r-r-rit-srit-srit*, with the accent on the first and last parts. This song is often uttered while the bird takes a short flight upward; it then drops down again into the tangled weeds and grasses, where it is almost impossible to follow it."

***Ammodramus leconteii* (Aud.)**

LECONTE'S SPARROW.

Popular synonyms. Leconte's Bunting; Yellow Sparrow (Manitoba).

Emberiza leconteii AUD. B. Am. viii, 1843, 338 pl. 488.

Coturniculus leconteii BP. 1850.—BAIRD, B. N. Am. 1858 491; Cat. N. Am. B. 1859, No. 340.—COUES, Key, 1872, 137; Check List, 1873, No. 164; 2d ed. 1882, No. 237.—B. N. W. 1874, 135.—B. B. & R. Hist. N. Am. B. i, 1874, 552, pl. 25, fig. 6.—RIDGW. Nom. N. Am. B. 1881, No. 200.

HAB. Eastern portion of the Great Plains of the United States, from Manitoba (in summer) to central Texas (in winter). In winter migrating through the prairie districts of the Mississippi Valley to South Carolina, Alabama, and Florida.

SP. CHAR. Bill much more slender than *C. henslowi*. First quill longest, the rest diminished rapidly. Tail emarginate and rounded, with the feathers acute. Upper parts light yellowish red, streaked with brownish black; the margins of the feathers and scapulars pale yellowish white. Tail-feathers dusky, margined with light yellowish. Lower parts, with the cheeks and a broad band over the eyes, fine buff. Medial line yellowish anteriorly, nearly white behind. The buff extending to the femorals and along the sides, streaked with brownish black. Throat, neck, and upper parts of the breast, without any streaks, and plain buff.

Adult male (No. 65,815, U. S. Nat. Mus.). Ground-color of the head white, tinged with buff on the maxillæ, and with ash on the auriculars; crown with two broad black stripes, separated by a narrow medial one of whitish; nuchal feathers bright rufous, edged with ashy white, and shafted with black; dorsal feathers black, broadly edged exteriorly with white, and interiorly narrowly skirted with rufous. Beneath entirely white, tinged on the throat with buff, and streaked on the sides—from the breast to the flanks—with black. Length, 5.00; extent, 7.10; wing, 2.10; tail, 2.00; culmen, .42; tarsus, .68. (August 19; plumage much worn and faded.)

Adult female (No. 65,814, U. S. Nat. Mus.). Resembling the male, but, being in less abraded plumage, the colors more pronounced. The band is deep buff (just as in *Ammodramus caudacutus*), the auriculars and lores distinctly grayish white, and the medial stripe of the crown ashy white, except the anterior third, which is buff. On the lower parts, the whole lower side of the head, and the entire breast, sides, flanks, and tibiae, are deep buff, the sides sharply streaked with black. The abdomen anal region and crissum are pure white, in marked contrast. Length, 5.00; extent, 7.00; wing, 2.00; tail, 2.10; culmen, .45; tarsus, .70.

Young. Ground-color above dull buff, below white; the pattern of the old birds seen in the markings, which, however, are pure black, all reddish and brown tints being absent—except on the wings and tail, which are nearly as in the adult.

In its unspotted breast, the rufous feathers of the hind-neck, the absence of submalar stripes, and apparently in the markings of the wings, it is most like *C. passerinus*. Although the middle tail-feathers

have the narrow stripe of *C. henslowi*, the bill is much smaller, as stated by Audubon, than in the others, and is distinctly bluish. The vertical stripe is deep buff anteriorly, instead of buff throughout, and the superciliary stripe is continuously buff, instead of yellow anterior to, and ashy behind, the eye. In the comparative length of wing and tail, it is most nearly related to *henslowi*, but the bill is very much narrower than in either.

This elegant little sparrow is, in some localities at least, an abundant migrant in Illinois. In the latter part of October, 1882, I found it numerous in meadows on Sugar Creek Prairie, Richland county, in company with *C. henslowi*, but preferring the rank grass near streams. It resembled the latter species in its actions, being difficult to flush and flying in a very zigzag manner, but was readily distinguished by its more slender build and conspicuously lighter or more ochraceous coloration. But few specimens have as yet been taken in the northeastern portion of the State. Mr. Nelson, in his catalogue, mentions it as follows:

"A rare migrant. I obtained a fine specimen May 13, 1875, at Riverdale, Illinois, and by my notes I see that a second specimen was observed the 21st of the same month near where the first was obtained. The specimen in my possession was flushed from a small depression in the prairie near the Calumet river, where the moisture had caused an early growth of coarse grass, about three inches in height. After darting off in an erratic course a few rods, it suddenly turned, and alighting ran rapidly through the grass, from which it was with difficulty started again and secured."

Mr. Chas. K. Worthen, of Warsaw, writes me as follows concerning this species:

"I have taken in the last two years, on the prairie here, some twenty specimens; have taken them both in fall and spring, as well as during the summer, and am satisfied they breed here, though I have not been able to find their nests or eggs. I have found them on low swampy prairies in the Mississippi bottoms, and on dry bluffs; but generally in swampy or marshy ground." (See "Nuttall Bulletin," January, 1880, p. 32.)

SUBGENUS *Passerculus* BONAPARTE.

Passerculus BONAP. Comp. List Birds, 1838 33. Type, *Fringilla savanna* WILS.

"GEN. CHAR. Bill moderately conical; the lower mandible smaller; both outlines nearly straight. Tarsus about equal to the middle toe. Lateral toes about equal, their

claws falling far short of the middle one. Hind toe much longer than the lateral ones, reaching as far as the middle of the middle claw; its claws moderately curved. Wings unusually long, reaching to the middle of the tail, and almost to the end of the upper coverts. The tertials nearly or quite as long as the primaries; the first primary longest. The tail is quite short, considerably shorter than the wings; as long as from the carpal joint to the end of the secondaries. It is emarginate, and slightly rounded; the feathers pointed and narrow." (*Hist. N. Am. B.*)

The essential characters of this genus lie in the elongated wings (longer than the tail), the tertials equal to the primaries, the first quill almost longest. The legs are long, the outstretched toes reaching to the end of the tail; the lateral toes considerable shorter than the middle, which is not much longer than the hinder. The tail is short, narrow, and emarginate; the feathers acute.

Ammodramus sandwichensis savanna (Wils.)

SAVANNA SPARROW.

Popular synonyms. Grass Bird; Ground Bird.

Fringilla savanna WILS. *Am. Orn.* iii, 1811, 55, pl. 22, fig. 2; iv, 1811, 72, pl. 34, fig. 4.—NUTT.

Man. i, 1832, 489.—AUD. *Orn. Biog.* ii, 1834, 63; v, 1839, 516, pl. 109.

Emberiza savanna BP. 1838.—BAIRD, *B. N. Am.* 1858, 442; *Cat. N. Am. B.* 1859, No. 332.—

COUES, *Key*, 1872, 135; *Check List* 1873, No. 159; *B. N. W.* 1874, 127.—B. B. & R. *Hist. N.*

Am. B. i, 1874, 534, pl. 24, fig. 8.

Passerculus sandwichensis savanna RIDGW. *Nom. N. Am. B.* 1881, No. 193 *a.*—COUES,

2d *Check List*, 1882, No. 227.

HAB. Eastern North America, breeding chiefly north of, and wintering south of, the parallel of 40°; Cuba. (The typical race of this species inhabits the north Pacific coast, from Vancouver Island to Unashka. It is similar in colors to *savanna*, but is decidedly larger. In other parts of western North America, including Alaska, with the exception of the coast district, the smaller, paler, and more slender-billed *P. sandwichensis alaudinus* replaces both the other forms.)

"SP. CHAR. Feathers of the upper parts generally with a central streak of blackish brown; the feathers of the back with a slight rufous suffusion laterally; the feathers edged with gray, which is lightest on the scapulars, and forms there two gray stripes. Crown with a broad median stripe of yellowish gray. A superciliary stripe from the bill to the back of the head, eyelids and edge of the elbow, yellow, paler behind. A yellowish white mandibular stripe curving behind the ear-coverts, and margined above and below by brown. The lower margin is a series of thickly crowded spots on the sides of the throat, which are also found on the sides of the neck, across the upper part of the breast and on the sides of the body; a dusky line back of the eye, making three on the side of the head (including the two mandibular). A few faint spots on the throat and chin. Rest

of under parts white. Length, 5.50; wing, 2.70; tail, 2.10. *Young.* Ground-color of the upper parts (except wings and tail) light ochraceous, more brownish on top of head, upper part of back, and on upper tail-coverts, the streaks blacker and more conspicuous than in the adult. Beneath with an ochraceous tinge anteriorly, the streaks broader and deeper black than in the adult, though less sharply defined. The infra-maxillary streak expanded into a broad, blackish elongated blotch." (*Hist. N. Am. B.*)

The Savanna Sparrow is one of those inconspicuous little birds which hide in the grass or run stealthily along the fences or furrows, having nothing special in their appearance or habits to attract particular attention. It is a very abundant species, at suitable seasons, throughout the eastern portions of North America, breeding in the more northern states and northward, and wintering in the more southern portions of the Union. In portions of Illinois the species is, to a greater or less extent, a permanent resident. At least, the writer has in summer taken its nest and eggs, and in midwinter shot specimens of the bird itself, at Mount Carmel. It was, however, very rare there in summer, and, except in mild seasons, by no means common in winter, being chiefly observed as a spring and fall migrant.

The general habits of the Savanna Sparrow are very similar to those of the Vesper Sparrow,—like the latter, frequenting meadows and nesting on the ground.

GENUS POOCÆTES BAIRD.

Poocætes BAIRD, Birds N. Am. 1858. 447. Type, *Fringilla graminea* GMEL.

"GEN. CHAR. Bill rather large; upper outline slightly decurved towards the end, lower straight; commissure slightly concave. Tarsus about equal to the middle toe; outer toe a little longer than the inner, its claw reaching to the concealed base of the middle claw; hind toe reaching to the middle of the middle claw. Wings usually long, reaching to the middle of the tail as far as the coverts, and pointed; the primaries considerably longer than the secondaries, which are not much surpassed by the tertiaries; second and third quills longest; first little shorter, about equal to the fourth, shorter than the tail; the outer tail-feathers scarcely shorter; the feathers rather stiff; each one acuminate and sharply pointed; the feathers broad nearly to the end, when they are obliquely truncate. Streaked with brown above everywhere; beneath, on the breast and sides. The lateral tail-feather is white. Shoulder chestnut-brown."

"The essential characters of the genus consist in the long and pointed wings longer than the tail and without long tertials; and the rather stiff forked tail, with its acute feathers." (*Hist. N. Am. B.*)

Poocætes gramineus (Gmel.)**VESPER SPARROW.**

Popular synonyms. Bay-winged Bunting; Grass Finch.

Fringilla graminea GMEL. S. N. i, 1788, 922.—AUD. Orn. Biog. i, 1831, 473; v, 1839, 502, pl. 94.—NUTT. Man. i, 1832, 182, 482.

Emberiza graminea WILS. Am. Orn. iv, 1811, 51, pl. 31, fig. 5.—AUD. Synop. 1839, 102; B. Am. iii, 1841, 65, pl. 153.

Poocætes gramineus BAIRD, B. N. Am. 1858, 447; Cat. N. Am. B. 1859, No. 337.—COUES, Key, 1872, 136; Check List, 1873, No. 161; 2d ed. 1882, No. 232; B. N. W. 1874, 129 (*Poæcetes*).—B. B. & R. Hist. N. Am. B. i, 1874, 545.—RIDGW. Nom. N. Am. B. 1881, No. 197.

HAB. Eastern United States and British Provinces, north to the Saskatchewan, in the interior; breeding chiefly north of 38° and wintering chiefly south of the same latitude, within the United States. (Replaced in the Western Province by *P. gramineus confinis*, distinguished by paler colors with narrower streaks, more slender bill, etc.)

"SP. CHAR. Tail feathers rather acute. Above light yellowish brown; the feathers everywhere streaked abruptly with dark brown, even on the sides of the neck, which are paler. Beneath yellowish (sometimes reddish) white; on the jugulum and sides of neck and body streaked with brown. A faint light superciliary and maxillary stripe; the latter margined above and below with dark brown; the upper stripe continued around the ear-coverts, which are darker than the brown color elsewhere. Wings with the shoulder light chestnut-brown, and with two dull whitish bands along the ends of the coverts; the outer edge of the secondaries also is white. Exposed portion of outer tail-feather and edge and tip of the second, white. Length, about 6.25; wing, 3.10; tail, 2.50; bill, .33 from frontal feathers to point, by .33 in depth at base; tarsus, .72. Bill yellow, dusky above; legs yellow. (Measurements of No. 10, 147, male, Washington, D. C.)"

This plainly colored bird is found throughout the State, in suitable localities, as a summer resident, and an occasional winter resident in the southern portion. Except in the more northern counties, however, it is abundant only during the migrations, the majority of them passing to the northward to breed. It inhabits during summer open grassy places, especially meadows, and but for its exceedingly sweet song would scarcely be noticed, so unobtrusive is it in its habits and appearance. The song of this species is thus described by Mr. John Burroughs, in his charming book called "Wake Robin":

"Have you heard the song of the Field-Sparrow?" he asks. "If you have lived in a pastoral country, with broad upland pastures, you could hardly have missed him. Wilson, I believe, calls him the Grass-Finch, and was evidently unacquainted with his powers of song. The two white lateral quills of his tail, and his habit of running and skulking a few yards in advance of you as you walk through the fields, are sufficient to identify him. Not in meadows or orchards, but in high, breezy pasture-grounds, will you look for

him. His song is most noticeable after sundown, when other birds are silent, for which reason he has been aptly called the Vesper Sparrow. The farmer following his team from the field at dusk catches his sweetest strain. His song is not so brisk and varied as that of the Song Sparrow, being softer and wilder, sweeter and more plaintive. Add the best parts of the lay of the latter to the sweet vibrating chant of the Wood Sparrow (*Spizella pusilla*), and you have the evening hymn of the Vesper-bird—the poet of the plain unadorned pastures. Go to those broad, smooth, up-lying fields, where the cattle and sheep are grazing, and sit down on one of the warm, clean stones, and listen to this song. On every side, near and remote, from out the short grass which the herds are cropping, the strain rises. Two or three long, silver notes of rest and peace, ending in some subdued trills or quavers, constitute each separate song. Often you will catch only one of the bars, the breeze having blown the minor part away. Such unambitious, unconscious melody! It is one of the most characteristic sounds in Nature. The grass, the stones, the stubble, the furrow, the quiet herds, and the warm twilight among the hills, are all subtly expressed in this song; this is what they are at least capable of.”

GENUS *CHONDESTES* SWAINSON.

Chondestes SWAINSON, Phil. Mag. i, 1827, 435. Type, *Chondestes strigatus* Sw., = *Fringilla grammaca* SAY.

“GEN. CHAR. Bill swollen; both outlines gently curved; the lower mandible as high as the upper; the commissure angulated at the base, and then slightly sinuated. Lower mandible rather narrower at the base than the length of the gonys; broader than the upper. Tarsi moderate, about equal to the middle toe; lateral toes equal and very short, reaching but little beyond the middle of the penultimate joint of the middle toe, and falling considerably short of the base of middle claw. Wings long, pointed, reaching nearly to the middle of the tail; the tertials not longer than the secondaries; the first quill shorter than the second and third, which are equal. The tail is moderately long, considerably graduated, the feathers rather narrow, and elliptically rounded at the end.

“Streaked on the back. Head with well defined large stripes. Beneath white, with a pectoral spot. Only one species recognized.” (*Hist. N. Am. B.*)

Chondestes grammacus (Say).

LARK SPARROW.

Popular synonyms. Lark Finch; Potato Bird (“Farmers about Saint Louis”; COALE).

Fringilla grammaca SAY, Long’s Exp. i, 1823, 139.—NUTT. Man. i, 1832, 430.—AUD. ORN. Biog. v, 1839, 17, pl. 390.

Chondestes grammaca BF. 1838.—BAIRD, B. N. Am. 1858, 456, (part); Cat. N. Am. B. 1859, No. 344, (part).—COUES, Key, 1872, 146, (part); Check List, 1873, No. 186 (part); 2d ed. 1882, No. 281 (part), ("*grammica*"); B. N. W. 1874, 159 (part).—B. B. & R. Hist. N. Am. B. i, 1874, 562, pl. 31, fig. 1.—RIDGW. Nom. N. Am. B. 1881, No. 204.
Emberiza grammaca AUD. Synop. 1839, 101; B. Am. iii, 1841, 63, pl. 158.

HAB. Mississippi Valley, north to Iowa, Wisconsin, and southern Michigan, east, regularly to Indiana, western Kentucky, etc., occasionally to Ohio, and casually to Massachusetts and the District of Columbia; west to eastern portion of the Great Plains; south to eastern Texas.

"SP. CHAR. Hood chestnut, tinged with black towards the forehead, and with a median stripe and superciliary stripe of dirty whitish. Rest of upper parts pale grayish olive, the interscapular region alone streaked with dark brown. Beneath white, a round spot on the upper part of the breast, a broad maxillary stripe cutting off a white stripe above, and a short line from the bill to the eye, continued faintly behind it, black. A white crescent under the eye, bordered below by black and behind by chestnut, on the ear-coverts. Tail-feathers dark brown, the outermost edged externally and with more than terminal third white, with transverse outline; the white decreasing to the next to innermost, tipped broadly with white. Length, 6 inches; wing, 3.30." (*Hist. N. Am. B.*)

The colors of the female are slightly duller than in the male, the chestnut less bright, the black not so intense; the pattern, however, is the same.

The young bird has the breast and throat with a good many spots of dark brown instead of the single large one on the breast. The other markings are more indistinct.

This handsomely marked bunting (for it is not a true sparrow, nor a finch) is found abundantly in all suitable localities, its favorite resort being fertile prairies and meadows adjoining strips or groves of timber. In Illinois it evinces a special fondness for corn-fields, in which it builds its nest at the foot of the stalks, while the male sings from the fence or the top of a small tree by the roadside.

It has been a matter of surprise to us that writers who have described the habits of western birds have not mentioned more particularly the vocal capabilities of this bird, which in sprightliness and continuity of song has few, if any, rivals among the North American *Fringillidæ*. Words entirely fail to describe its song, which, among the oak groves of California, as well as on the prairies of Illinois, is pre-eminent for the qualities above mentioned. As the bird perches upon the summit of a small tree, a fence post, or a telegraph wire, his notes may be heard throughout the day—in the morning before those of any other, and late in the evening when all else but this unweary songster are silent; indeed, often have we been awakened at midnight by a sudden outburst of silvery warblings from one of this species. This song is composed of a series of chants, each syllable rich, loud, and clear, interspersed

with emotional trills. At the beginning the song reminds one somewhat of that of the Indigo Bird (*Passerina cyanea*), but the notes are louder and more metallic, and their delivery more vigorous. Though seemingly hurried, it is one continued gush of sprightly music; now gay, now melodious, and then tender beyond description,—the very expression of emotion. At intervals the singer falters, as if exhausted by exertion, and his voice becomes scarcely audible; but suddenly reviving in his joy, it is resumed in all its vigor, until he appears to be really overcome by the effort.

The range of this species is probably pretty general within the State except in those districts over which forests still largely prevail. In Cook county, according to Mr. Nelson, (*Bull. Essex. Inst.* Vol. VIII., 1876, p. 107), it is “a common summer resident. Arrives the last of April or first of May, nesting the last of this month; departs August 25th to September 10th. Frequents barren fields and borders of prairies containing a sparse growth of small trees and rank weeds. Its nest is generally placed at the foot of some rank weed in a bare piece of ground. My observations regarding the song and general habits of the species, coincide with those of Mr. Ridgway as given in *North American Birds* (Vol. I., p. 561).”

The memoranda of Mr. H. K. Coale, relating to this species, which he has kindly allowed me to quote here, are as follows:

“This is a rather rare summer resident. About once a year I run across a stray pair on a burnt prairie or by the road. In July, 1883, saw one on a bare piece of land near woods, and watched him for half an hour or more; was quite unsuspecting and kept about the same place picking at the weed seeds. In St. Clair county I saw one pair; it is there called “potato bird”; people say that few survive the Paris green which they eat with the potato bugs.”

GENUS ZONOTRICHIA SWAINSON.

Zonotrichia SWAINS. Fauna Bor.-Am. ii, 1831, 493. Type, *Emberiza leucophrys* FORST.

“GEN. CHAR. Body rather stout. Bill conical, slightly notched, somewhat compressed, excavated inside; the lower mandible rather lower than the upper; gonys slightly convex; commissure nearly straight. Feet stout; tarsus rather longer than middle toe; the lateral toes very nearly equal. Hind toe longer than the lateral ones; the claws of the latter just reaching to base of middle one. Inner claw contained twice in its toe proper; claws all slender and considerably curved. Wings moderate, not reaching to the middle of the tail, but beyond the rump; secondaries and tertials equal and considerably less than longest primaries; second and third quills longest, first about equal to the fifth, much longer than tertials. Tail rather long, moderately rounded; the feathers not very broad.

“Back streaked. Rump and under parts immaculate, except in young. Head black, or with white streaks, entirely different from the back.

"This genus embraces some of the most beautiful of American Sparrows, all of the largest size in their subfamily.

"All the species properly belonging to this genus are North American; several South American species have, however, been assigned to it; but they are none of them strictly congeneric with those given below." (*Hist. N. Am. B.*)

Several Neotropical *Fringillidæ* have been referred to *Zonotrichia*, but none of them are strictly congeneric with the North American species, which together constitute a very distinctly circumscribed group. *Z. quinquestriata* SCL. & SALV. and *Z. mystacalis* HARTL. are apparently referable to *Amphispiza* COUES, of which the *Emberiza bilineata* CASSIN is typical, though they may possibly constitute a generic or subgeneric group by themselves; while *Z. pileata* (BODD.), a species distributed extensively over Central and South America, comes nearer the genus *Pyrgisoma*.

This species of *Zonotrichia* (as properly restricted) may be distinguished as follows:

A. No yellow supraloral spot, and throat not abruptly white.

a. Crown black, without lighter median stripe, but sometimes squamated with pale or dull whitish.

1. *Z. querula*. *Adult*: Crown, lores, chin, and throat, uniform deep black; beneath pure white, the sides striped with black; sides of head gray; back light grayish brown, streaked with brownish black. *Young, first winter*: Crown black, the feathers bordered with pale grayish brown, producing a scaled appearance; throat white, bordered on each side with a dusky streak; a blackish patch, or cluster of spots, on the jugulum; sides of head and neck buffy.

b. Crown black or brown, divided by a white, buff or yellowish stripe.

§ Median stripe of crown white (in adult) or buff (in young).

2. *Z. leucophrys*. Lores black or brown. *Adult*: Head-stripes black (one on each side of crown and one behind the eye) and white (one on middle of crown and one over the ear-coverts). Back light ash-gray, streaked with chestnut-brown; edge of wing white, breast clear light ash-gray. *Young, first winter*: Head-stripes chestnut-brown and dull buff; otherwise similar to adult. *Young, first plumage*: Crown dusky blackish on sides, the middle whitish streaked with dusky; throat and breast more or less streaked with dusky.

3. *Z. gambeli*.* Pattern of coloration exactly as in *leucophrys*, except that the lores are grayish white, or (in young) grayish buff, confluent with the light superciliary stripe. Median stripe of crown grayish white, much narrower than lateral black stripes; back olive-brownish, streaked with brownish black; edge of wing yellowish; whole throat, foreneck, etc., dingy gray.

4. *Z. intermedia*. Similar to *Z. gambeli*, but median stripe of crown pure white, wide as or wider than black lateral stripes; back ashy, streaked with chestnut-brown; edge of wing white; throat, etc., pale ashy. (Colors exactly as in *leucophrys*, except as to the lores, which are grayish white instead of black.)

*Confined to the Pacific Coast.

§§ Forehead and fore part of crown yellow centrally.

5. *Z. coronata*. Middle of crown, anteriorly, bright greenish yellow (in adult) or olive-yellow (in young). *Adult*: Pileum black laterally, the median portion yellow anteriorly, and ash-gray posteriorly. Plumage otherwise exactly as in *Z. gambeli*. *Young, in first winter*: No distinct stripes on crown, which is dull olive-yellowish, obscured by grayish brown, and streaked with dusky; the streaks more distinct posteriorly, and sometimes forming an ill-defined stripe on the side; otherwise, like the adult.

B. A yellow supraloral spot; throat abruptly white.

6. *Z. albicollis*. *Adult*: Two broad stripes on the crown, and a narrow one behind the eye, black; a white stripe in middle of crown, and one over ear-coverts, the latter becoming bright yellow over lores; ear-coverts and jugulum deep ash; back rusty brown, streaked with black. *Young, first winter*: Similar to adult, but head-stripes rusty dusky-brown and pale rusty buff, the yellow over the lores, and the white throat-patch, less distinct. *Young, first plumage*: Crown uniform snuff-brown, with a narrow whitish middle stripe; superciliary stripe dirty whitish, with no yellow over lores; jugulum streaked with dusky. Throat not abruptly white.

Zonotrichia querula (Nutt.)

HARRIS'S SPARROW.

Popular synonym. Mourning Finch.

Fringilla querula NUTT. Man. 2d ed. i, 1840, 558.

Zonotrichia querula GAMB. 1847.—BAIRD, B. N. Am. 1858, 462; Cat. N. Am. B. 1859, No. 348.

—COUES, Key, 1872, 145; Check List 1873, No. 185; 2d ed. 1882, No. 280; B. N. W. 1874, 157.—B. B. & R. Hist. N. Am. B. i, 1874, 577, pl. 26, figs. 4, 7.—RIDGW. Nom. N. Am. B. 1881, No. 205.

Fringilla harrisii AUD. B. AM. vii, 1843, 331, 484.

Fringilla comata MAX. Reise Nord-Am. ii, 1841, 352.

HAB. Eastern border of the Great Plains, from northern Minnesota and Dakota (in summer) to central and eastern Texas (in winter). East, irregularly (?) to Wisconsin, Illinois, Iowa, and Missouri.

"SP. CHAR. Hood and nape, sides of head anterior to and including the eyes, chin, throat, and a few spots in the middle of the upper part of the breast and on its sides, black. Sides of head and neck ash-gray, with the trace of a narrow crescent back of the ear-coverts. Interscapular region of back, with the feathers reddish brown, streaked with dark brown. Breast and belly clear white. Sides of body light brownish, streaked. Two narrow white bands across the greater and middle coverts. Length about 7 inches; wing, 3.40; tail, 3.65.

"The bill of this species appears to be yellowish red. More immature specimens vary in having the black of the head more restricted, the nape and sides of the head to the bill pale reddish brown, lighter on the latter region. Others have the feathers of the anterior portion of the hood edged with whitish. In all there is generally a trace of black anterior to the eye." (*Hist. N. Am. B.*)

Considering the length of time it has been known (more than 40 years), comparatively little has been learned regarding the habits of this

species. Its nest and eggs are to this date (June, 1886) unknown, as is also its exact range during the breeding season.

The only specimens of this species known to the writer as having been taken in Illinois were those recorded in the "Nuttall Bulletin" for January, 1880, pp. 30, 31, one of which was obtained at Bloomington, in the spring of 1877, the other at Normal, on the 14th of November, 1879, both by Mr. W. H. Garman. Several examples have been taken in southern Wisconsin, near the Illinois line, one of which, shot at Racine, by Dr. Hoy, was mentioned by Mr. Nelson in his list, while three others, reported to me by Mr. H. K. Coale, were collected at LaCrosse, October 3, 1883.

Zonotrichia leucophrys (Forst.)

WHITE-CROWNED SPARROW.

Emberiza leucophrys FORST. Philos. Trans. lxii, 1772, 382, 403, 426.—WILS. Am. Orn. iv, 1811, 49, pl. 31, fig. 4.

Fringilla leucophrys BP. 1828.—NUTT. Man. i, 1832, 479.—AUD. Orn. Biog. ii, 1834, 88; v, 1839, 515, pl. 144; Synop. 1839, 121; B. Am. iii, 1841, 157, pl. 192.

Fringilla (Zonotrichia) leucophrys SW. & RICH. F. B.-A. ii, 1831, 255.

Zonotrichia leucophrys BP. 1838.—BAIRD, B. N. Am. 1858, 458; Cat. N. Am. B. 1859, No. 345.—COUES, Key, 1872, 144; Check List, 1873, No. 183; 2d ed. 1882, No. 276; B. N. W. 1874, 154.—B. B. & R. Hist. N. Am. B. i, 1874, 566, pl. 25, figs. 9, 10.—RIDGW. Nom. N. Am. B. 1881, No. 206.

HAB. Breeding from northern Labrador to the Rocky Mountains, and south to at least latitude 48° on the Sierra Nevada in California and the higher ranges of Colorado. In winter, most of the eastern United States, wintering chiefly south of 33°; also, portions of Mexico, including Cape St. Lucas.

"SP. CHAR. Head, above, upper half of loreal region from the bill, and a narrow line through and behind the eye to the occiput, black; a longitudinal patch in the middle of the crown, and a short line from above the anterior corner of the eye, the two confluent on the occiput, white. Sides of the head, forepart of breast, and lower neck all round, pale ash, lightest beneath, and shading insensibly into the whitish of the belly and chin; sides of the belly and under tail-coverts tinged with yellowish brown. Interseapular region streaked broadly with dark chestnut-brownish. Edges of the tertiaries brownish chestnut. Two white bands on the wing.

Female. Similar but smaller; immature birds in first winter, with the black and white stripes on the crown replaced by dark chestnut-brown and brownish yellow. Length, 7.10 inches; wing, 3.25. *Young of the year* thickly streaked with dusky on the breast. The lateral stripes of the crown dull brown, the median one streaked whitish."

"The white of the crown separates two black stripes on either side, rather narrower than itself. The black line behind the eye is continued anterior to it into the black at the base of the bill. The lower eyelid is white. There are some obscure cloudings of darker

on the neck above. The rump is immaculate. No white on the tail except very obscure tips. The white on the wings crosses the ends of the middle and greater coverts." (*Hist. N. Am. B.*)

This fine sparrow is usually an abundant migrant in the northern portions of the State, and a more or less common winter resident in the southern parts. At Mount Carmel it was often abundant throughout the winter, frequenting, during the coldest weather, the door-yards and gardens, in company with Snowbirds (*Junco hyemalis*), Tree Sparrows, White-throated Sparrows, Yellow-rump Warblers, and other familiar species. Its clear, but rather subdued, whistling song was often heard just before its departure for the north. This song much resembles that of the White-throated Sparrow, but is less monotonous and rather more plaintive.

"Among the birds that tarry briefly with us in the spring on their way to Canada and beyond," writes Mr. John Burroughs, in *Scribner's*, "there is none that I behold with so much pleasure as the White-crowned Sparrow. I have an eye out for him all through April and the first week in May. He is the rarest and most beautiful of the Sparrow kind. He is crowned as some hero or victor in the games. He is usually in company with his congener, the White-throated Sparrow, but seldom more than in the proportion of one to twenty of the latter. Contrasted with this bird, he looks like its more fortunate brother, upon whom some special distinction has been conferred, and who is, from the egg, of finer make and quality. His sparrow color, of ashen gray and brown, is very clear and bright, and his form graceful. His whole expression, however, culminates in a regular manner in his crown. The various tints of the bird are brought to a focus here and intensified, the lighter ones becoming white and the deeper ones nearly black. There is the suggestion of a crest also, from a habit this bird has of slightly elevating this part of its plumage, as if to make more conspicuous its pretty markings. They are great scratchers, and will often remain several minutes scratching in one place like a hen. Yet, unlike the hen and like all hoppers, they scratch with both feet at once, which is by no means the best way to scratch."

Zonotrichia albicollis (Gmel.)**WHITE-THROATED SPARROW.**

Popular synonyms. Peabody Bird (New England); Yellow-browed Sparrow.

Fringilla albicollis GMEL. S. N. i, 1788, 926.—WILS. Am. Orn. iii, 1811, 51, pl. 22, fig. 2.

Zonotrichia albicollis SW. 1837.—BAIRD, B. N. Am. 1858, 463; Cat. N. Am. B. 1859, No. 349.

—COUES, Key, 1872, 144, fig. 88; Check List, 1873, No. 182, 2d ed. 1882, No. 275; B. N. W. 1874, 151.—B. B. & R. Hist. N. Am. B. i, 1874, 574, pl. 26, fig. 10.—RIDGW. Nom. N. Am. B. 1881, No. 209.

Fringilla pennsylvanica LATH. Ind. Orn. 1790, 446.—AUD. Orn. Biog. i, 1831, 42, pl. 8; Synop. 1839, 121; B. Am. iii, 1841, 153, pl. 191.

HAB. Eastern North America, breeding from northern United States north to the "Fur Countries." Winters in the United States, chiefly south of 40°, and west to the borders of the Great Plains; accidental west to Utah and Oregon; also, in England.

"SP. CHAR. Two black stripes on the crown, separated by a median one of white. A broad superciliary stripe from the base of the mandible to the occiput, yellow as far as the middle of the eye, and white behind this. A broad black streak on the side of the head from behind the eye. Chin white, abruptly defined against the dark ash of the sides of the head and upper part of the breast, fading into white on the belly, and margined by a narrow black maxillary line. Edge of wing and axillaries yellow. Back and edges of secondaries rufous brown, the former streaked with dark brown. Two narrow white bands across the wing-coverts. Length, 7 inches; wing, 3.10; tail, 3.20. Young of the year not in the collection." (*Hist. N. Am. B.*)

Few birds, if any, are more abundant or more generally distributed than is the present species, during the winter, throughout the more eastern United States. From the eastern border of the Great Plains to the Atlantic coast it is decidedly the most numerous of the Fringillidæ,—every hedge-row, brier-patch, brush-pile or similar place being frequented by dozens or scores of individuals. During the day these occupy themselves silently in gleaning for food among the dead leaves, but at the approach of dusk congregate more closely together, and before seeking their "roost," in the thicker growths of a swamp, in brush-piles, etc., become quite noisy, calling to one another with a sharp, penetrating, almost metallic chirp, which is peculiarly in accord with a cold, drear winter evening. In the spring, before their departure for the north, the males occasionally whistle their monotonous but exceeding clear and plaintive chant, sounding like *pe-pe-pe'body*, *pe'body*, *pe'body*,—on which account the species has in parts of New England received the name of "Peabody Bird."

GENUS SPIZELLA BONAPARTE.

Spizella BONAP. Geog. and Comp. List, 1838, 33. Type, *Fringilla canadensis* LATH., = *F. monticola* GMEL.

"GEN. CHAR. Bill conical, the outlines slightly curved; the lower mandible decidedly larger than the upper; the commissure gently sinuated; the roof of the mouth not

knobbed. Feet slender; tarsus rather longer than the middle toe; the hinder toe a little longer than the outer lateral, which slightly exceeds the inner; the outer claw reaching the base of the middle one, and half as long as its toe. Claws moderately curved. Tertiaries and secondaries nearly equal; wing somewhat pointed, reaching not quite to the middle of the tail. First quill a little shorter than the second and equal to the fifth; third longest. Tail rather long, moderately forked, and divaricated at the tip; the feathers rather narrow. Back streaked; rump and beneath immaculate. Young streaked beneath.

"This genus differs from *Zonotrichia* principally in the smaller size, and longer and forked instead of rounded tail.

"Birds of the year of this genus are very difficult to distinguish, even by size, except in *monticola*. The more immature birds are also very closely related. In these the entire absence of streaks on a plumbeous head point to *atrigrularis*; the same character in a reddish cap, and a reddish upper mandible, to *pusilla*; a dusky loreal spot, with dark streaks, and generally a rufous shade on top of head, to *socialis*. *S. breweri*, with a streaked head, lacks the dusky lore and chestnut shade of feathers. *S. pallida* generally has a median light stripe in the cap, and a dusky mandibular line." (*Hist. N. Am. B.*)

With a single exception, all the known species of this genus are North American, though one of them (*S. atrigrularis*) barely comes within our borders in Arizona and southern California. The single purely extralimital species is *S. pinetorum* SALVIN, of the Guatemalan highlands. It is closely related to *S. socialis*, but is evidently distinct.

Leaving out *S. atrigrularis* and *S. wortheni*,* the species inhabiting the United States may be characterized as follows:

COMMON CHARACTERS. Back brownish, sharply streaked with black; rump plain grayish; wings with two light bands; lower parts unstreaked, except in young.

A. Crown rufous in adults.

a. Maxilla black, the mandible yellow; a dusky spot on the jugulum.

1. *S. monticola*. *Adult*: Crown and outer webs of scapulars and tertials, bright rufous; two distinct white bands on the wing; sides of head and neck ash-gray, lighter on throat; a pale gray superciliary stripe, whitish anteriorly; a rufous postocular stripe; a dusky spot in middle of the jugulum.

b. Bill wholly black or reddish brown.

2. *S. pusilla*. Bill wholly light reddish brown. Crown dull rufous; back dull rufous, the feathers edged with grayish and streaked centrally with black; outer edges of tertials pale grayish brown; sides of head pale ash-gray, with a dull rufous streak behind the eye; wing with two indistinct bands. *Young*: Crown and back dull grayish brown, without rufous; breast narrowly and indistinctly streaked with dusky.

3. *S. socialis*. Bill wholly black in adults; dull reddish brown in young. Crown bright rufous, becoming black anteriorly; a whitish superciliary stripe; a blackish streak behind the eye; ear-coverts, sides of neck and rump, ash-gray. *Young*: Crown and back brown, broadly streaked with black; breast and sides thickly streaked with dusky.

* *Spizella wortheni* RIDGW. Proc. U. S. Nat. Mus. vii, Aug. 22, 1884, 259. Silver City, New Mexico. (Dedicated to Mr. Chas. K. Worthen, of Warsaw, Illinois.)

B Crown grayish brown, streaked with black, at all ages.

4. *S. pallida*. *Adult*: Crown streaked black and brown, divided by a distinct stripe of light brownish gray; nape ash-gray; ear-coverts light brownish, edged above and below by a dusky streak; distinct maxillary and superciliary stripes of brownish white, the former bordered underneath by a dusky bridle; beneath continuous white, the breast and sides faintly shaded with grayish brown. *Young*: Head more tinged with fulvous, and the markings less distinct; breast streaked with dusky.
5. *S. breweri*. *Adult*: Crown pale grayish brown, streaked with black, and without middle stripe; nape and back similar; no distinct superciliary or maxillary stripe, and ear-coverts but slightly darker than adjoining portions. *Young*: Similar, but breast streaked with dusky.

Spizella monticola (Gmel.)

TREE SPARROW.

Popular synonyms. Canadian Sparrow; Winter Chippy.

Fringilla monticola GMEL. S. N. i, 1788, 912.

Spizella monticola BAIRD, B. N. Am. 1853, 472; Cat. N. Am. B. 1859, No. 357.—COUES, Key, 1872, 142; Check List, 1873, No. 177; 2d ed. 1882, No. 268; B. N. W. 1874, 146.—B. B. & R. Hist. N. Am. B. ii, 1874, 3, pl. 27, fig. 5.

Fringilla canadensis LATH. Ind. Orn. i, 1790, 434.—NUTT. Man. i, 1832, 495.—AUD. Orn. Biog. ii, 1834, 511; v, 1839, 504, pl. 138.

Emberiza canadensis SW. & RICH. 1831.—AUD. Synop. 1839, 105; B. Am. iii, 1841, 83, pl. 166.

Fringilla arborea WILS. Am. Orn. ii, 1810, 12, pl. 16, fig. 3.

Spizella montana "(FORST.)" RIDGW. Nom. N. Am. B. 1881, No. 210.

HAB. Eastern North America, breeding (so far as known) wholly north of the United States (Labrador, Hudson's Bay Terr., and thence nearly or quite to the Arctic coast), wintering chiefly within the United States. (In western North America represented by the paler colored *S. monticola ochracea* BREWSTER, which breeds in Alaska, and migrates in winter to the Western States and Territories.)

SP. CHAR. Mandible yellow, maxilla black. Pileum rich rufous, also a distinct post-ocular stripe; sides of head light ash-gray, including a broad superciliary stripe, the latter nearly white anteriorly. Nape mixed ashy and rufous. Back rusty ochraceous, streaked with rufous and black. Wings rusty, the feathers blackish centrally; both rows of wing-coverts broadly tipped with pure white, forming two distinct bands; tertials bordered with white toward ends. Rump uniform grayish olive. Tail dark grayish brown, feathers edged with paler. Lower parts whitish, tinted with ashy anteriorly, sides and flanks tinged with ochraceous, sides of breast tinged with rufous, and middle of jugulum with a dusky spot. Total length, 6.25-6.50 inches; extent, 9.25-9.50; wing, about 2.80-3.10; tail, 2.80-3.00.

This pretty little sparrow is one of our most common and familiar winter residents, occurring everywhere throughout the State, and in the sheltered bushy swamps in the more southern counties congregating in immense numbers. It comes familiarly about the door-yards and gardens, gleaning from the snow in company with Snow-birds (*Junco hyemalis*) and other winter residents. During the warmer days of winter, or even if the weather be cold though clear, the rich medley of soft jingling notes uttered by a number of

individuals of this species is not excelled for sweetness by any bird notes, while during the love season, says Dr. Brewer, "the Tree Sparrow is quite a fine musician, its song resembling that of the Canary, but finer, sweeter, and not so loud." According to Mr. Brewster, "their song is a loud, clear and powerful chant, starting with two high notes, then falling rapidly, and ending with a low, sweet warble." After mentioning the fact that this species is, in northeastern Illinois, an "abundant winter resident about thickets and in marshes," and that it "arrives the 15th of October and departs the 1st of April," Mr. Nelson, in his list (p. 108) thus appropriately describes their song:

"The first of March they collect in large flocks and are very musical. Often a large portion of the flock will unite in song which, although it may be more than equaled later in the season, yet, coming as it does between winter and spring, and so touchingly plaintive, one involuntarily stops to listen with a peculiar feeling of pleasure."

Spizella socialis (Wils.)

CHIPPING SPARROW.

Popular synonyms. Chippy; Chip-bird; Hair-bird.

Fringilla socialis WILS. Am. Orn. ii, 1810, 127, pl. 16, fig. 5.—NUTT. Man. f, 1832, 497.—AUD. Orn. Biog. ii, 1834, 21; v, 1839, 517, pl. 104.

Emberiza socialis AUD. Synop. 1839, 105; B. Am. iii, 1841, 80, pl. 165.

Spizella socialis BP. 1838.—BAIRD, B. N. Am. 1858, 473; Cat. N. Am. B. 1859, No. 359.—COUES, Key, 1872, 142; Check List, 1873, No. 178; B. N. W. 1874, 148.—B. B. & R. Hist. N. Am. B. ii, 1874, 7, pl. 27, fig. 1.

Spizella domestica "(BARTR.)" COUES, Proc. Phil. Ac. 2d Check List, 1882, No. 269.—RIDGW. Nom. N. Am. B. 1881, No. 211.

HAB. Eastern North America, north to the "Fur Countries," wintering in Southern States, Cuba, and eastern Mexico. In the western United States and the greater part of Mexico, replaced by the slightly but constantly different *S. socialis arizonæ*.

"SP. CHAR. Rump, back of neck, and sides of head and neck, ashy. Interscapular region with black streaks, margined with pale rufous. Crown continuous and uniform chestnut. Forehead black, separated in the middle by white. A white streak over the eye to nape, and a black one from the base of the bill through and behind the eye. Lores dusky. Upper parts unspotted whitish, tinged with ashy on the sides and across the upper breast. Tail-feathers and primaries edged with paler, not white. Two narrow white bands across the wing-coverts. Bill black. Length, 5.75; wing, nearly 3.00; tail, 2.50 (or less).

"Young. Immature birds and frequently the adult females with the cap streaked with blackish lines, the chestnut sometimes nearly or quite wanting. Birds of the year streaked beneath and on rump.

"The color of bill varies; sometimes entirely black throughout, sometimes very light (but never reddish as in *S. pusilla*), with all intermediate stages. There is usually, however, a dusky tinge in the upper bill, wanting in *pusilla*, and the lores are almost always more or less dusky in all stages of plumage." (*Hist. N. Am. B.*)

So well known is the common Chipping Sparrow, Chip-bird, or Chippy, that a particular account of its habits is hardly necessary here. Perhaps the most familiar and confiding of all our birds, it is at the same time one of the most beneficial; and, so far as we are aware, possesses not a single objectionable trait. Says Dr. Brewer (*Hist. N. Am. B.*, Vol. II., pp. 9, 10):

"The tameness and sociability of this bird surpass that of any of the birds I have ever met with in New England, and are only equaled by similar traits manifested by the Snowbird (*J. hyemalis*) in Pictou. Those that live about our dwellings in rural situations, and have been treated kindly, visit our doorsteps, and even enter the houses, with the greatest familiarity and trust. They will learn to distinguish their friends, alight at their feet, call for their accustomed food, and pick it up when thrown to them, without the slightest signs of fear. One pair which, summer after summer, had built their nest in a fir-tree near my door, became so accustomed to be fed that they would clamor for their food if they were any morning forgotten. One of these birds, the female, from coming down to the ground to be fed with crumbs, soon learned to take them on the flat branch of the fir near her nest, and at last to feed from my hand, and afterwards from that of other members of the family. Her mate, all the while, was comparatively shy and distrustful, and could not be induced to receive his food from us, or to eat in our presence."

Spizella pallida (Swains.)

CLAY-COLORED SPARROW.

Emberiza pallida SWAINS. F. B.—A. ii, 1831, 251.

Spizella pallida BP. 1838.—BAIRD, B. N. Am. 1858, 474; Cat. N. Am. B. 1859, No. 360.—COUES, Key, 1872, 143; Check List, 1873, No. 180; 2d ed. 1882, No. 272; B. N. W. 1874, 148.—B. B. & R. Hist. N. Am. B. ii, 1874, 11, pl. 27, fig. 3.—RIDGW. Nom. N. Am. B. 1881, No. 212.

Emberiza shattuckii AUD. B. Am. vii, 1843, 347, pl. 493.

HAB. Great Plains, from the Saskatchewan to Texas, and (in winter) along the southern border to Arizona and Cape St. Lucas, west to base of Rocky Mountains, east to prairies of Iowa, Wisconsin, and Illinois. (NOTE. The "*Emberiza pallida*" of Audubon's works is not this species, but *S. breweri*, Cass., which replaces *S. pallida* from the Rocky Mountains to the Pacific coast. The two species are closely allied, but quite distinct.)

"SP. CHAR. Smaller than *S. socialis*. Back and sides of hind neck ashy. Prevailing color above pale brownish yellow, with a tinge of grayish. The feathers of back and crown streaked conspicuously with blackish. Crown with a median pale ashy and a lateral or superciliary ashy white stripe. Beneath whitish, tinged with brown on the

breast and sides, and an indistinct narrow brown streak on the edge of the chin, cutting off a light stripe above it. Ear-coverts brownish yellow, margined above and below by dark brown, making three dark stripes on the face. Bill reddish, dusky towards tip. Legs yellow. Length, 4.75; wing, 2.55.

"The ashy collar is quite conspicuous, and streaked above with brown. The rump is immaculate. The streaks on the feathers of the crown almost form continuous lines, about six in number. The brown line above the ear-coverts is a postocular one. That on the side of the chin forms the lower border of a white maxillary stripe which widens and curves around behind the ear-coverts, fading into the ashy of the neck. The wing feathers are all margined with paler, and there is an indication of two light bands across the ends of the coverts.

"The young of this species is thickly streaked beneath, over the throat, breast, and belly, with brown, giving to it an entirely different appearance from the adult. The streaks in the upper parts, too, are darker and more conspicuous. The margins of the feathers are rather more rusty.

"This species is readily distinguishable from the other American *Spizellas*, except *S. breweri* (which see), in the dark streaks and median ashy stripe on the crown, the paler tints, the dark line on the side of the chin, etc." (*Hist. N. Am. B.*)

The Clay-colored Sparrow is one of that group of species to which we have previously alluded (see page 246) as characterizing a Campestrian Province. Its range is closely coincident with that of Sprague's Pipit (*Anthus spragueii*), Baird's and Leconte's Sparrows, Harris's Finch, McCown's and Chestnut-collared Longspurs, and Lark Bunting,—being the Great Plains, in their whole extent, from the Valley of the Saskatchewan southwards, and to the eastward extending sparingly into the prairie districts along the eastern side of the Mississippi river. In Illinois, the present species is known with certainty to occur only in the more northern portions of the State, although it no doubt inhabits the prairie districts well southward, especially in the more western counties. Mr. Nelson records it as "a rare summer resident about the borders of prairies," in Cook county, and adds that "specimens are in Mr. Holden's collection taken near Chicago."

In its habits this species is said to closely resemble the Chipping Sparrow, especially in its confiding familiarity, and its song is said to be very similar to that of *S. socialis*. The nest and eggs of the two species are hardly distinguishable.

Spizella pusilla (Wils.)**FIELD SPARROW.**

Popular synonyms. Field Chippy, or Chip-bird; Red-billed Chippy.

Motacilla juncorum GMEL. S. N. i, 1788, 952 (based on *Little Brown Sparrow* of CATESBY).

Fringilla juncorum NUTT. Man. i, 1832, 499; ed. 1840, i, 577.

Fringilla pusilla WILS. Am. Orn. ii, 1810, 121, pl. 16, fig. 2.—AUD. Orn. Biog. ii, 1834, 220, pl. 139.

Emberiza pusilla AUD. Synop. 1839, 104; B. Am. iii, 1841, 77, pl. 164.

Spizella pusilla BP. 1833.—BAIRD, B. N. Am. 1858, 473; Cat. N. Am. B. 1859, No. 338.—COUES, Key, 1872, 143; Check List, 1873, No. 179; B. N. W. 1874, 148.—B. B. & R. Hist. N. Am. B. ii, 1874, 5, pl. 27, fig. 2.—RIDGW. Nom. N. Am. B. 1881, No. 214.

Spizella agrestis "(BARTR.)" COUES, 2d Check List, 1872, No. 271.

HAB. Eastern United States, breeding throughout (except in Gulf States?) and wintering chiefly south of 38°.

SP. CHAR. Bill brownish red. Crown continuous rufous, with a faint indication of an ashy central stripe, and ashy nuchal collar. Back somewhat similar, with shaft-streaks of blackish. Sides of head and neck (including a superciliary stripe) ashy. Ear-coverts rufous. Beneath white, tinged with yellowish anteriorly, the sides of the breast with a rufous patch. Tail-feathers and quills faintly edged with white. Two whitish bands across the wing-coverts. Autumnal specimens more rufous. Length about 5.75; wing, 2.34.

"This species is about the size of *S. socialis*, but is more rufous above; lacks the black forehead and eye stripe; has chestnut ears, instead of ash; has the bill red, instead of black; lacks the clear ash of the rump; has a longer tail, etc. It is more like *monticola*, but is much smaller; lacks the spot on the breast, and the predominance of white on the wings, etc. The young have the breast and sides streaked, and the crown slightly so." (*Hist. N. Am. B.*)

Although equally common with the Chipping Sparrow, and in many localities even more abundant, the little Field Sparrow is far less known on account of its more secluded habits. Instead of seeking the society of man it almost wholly avoids the towns and seems inseparably attached to the rural districts. It is by no means timid or retiring, however, but prefers the country because only there can it find those localities which are essential to its presence.

The Field Sparrow inhabits all sorts of bushy localities, such as hazel and blackberry thickets, old fields grown up to weeds and sprouts, the borders of prairies, etc. Its nest is built either on the ground or not higher than two or three feet above it, and the eggs are very different in color from those of the Chipping Sparrow, being greenish or bluish white, thickly speckled with reddish brown. Frequently the nest is built in gooseberry or currant bushes in a farm-house garden, but oftener a more secluded spot is chosen.

While conceding that this species is "a very varied and fine singer," Dr. Brewer (*Hist. N. Am. B.* Vol. II., p. 6) says "its notes are not very powerful, and cannot be heard any distance." This has not been the writer's experience, however, his observations leading him to quite the contrary opinion. In Illinois, Indiana, Maryland, and Virginia, where he has listened to its song on countless occasions, he has always regarded the song of the Field Sparrow as being particularly characterized by its power, being certainly far louder and capable of being heard at a much greater distance, than that of the Song Sparrow (*Melospiza fasciata*) or Vesper Sparrow (*Poocetes gramineus*) or any others of the smaller species of this family. The Field Sparrow's song is further characterized by its plaintiveness, and were it not for this quality would rank among the very finest bird songs which can be heard in our fields. Sometimes a particularly gifted male will repeat twice or three times the usual song, without faltering between, and then the performance becomes truly fine.

GENUS JUNCO WAGLER.

Junco WAGLER, Isis, 1831, 526. Type, *Fringilla cinerea* Sw.

GEN. CHAR. Bill small, conical; culmen curved at the tip; the lower jaw quite as high as the upper. Tarsus longer than the middle toe; outer toe longer than the inner, barely reaching as far as the middle of the latter; extended toes reaching about to the middle of the tail. Wings rather short; reaching over the basal fourth of the exposed surface of the tail; primaries, however, considerably longer than the secondaries and tertials, which are nearly equal. The second quill longest, the third to fifth successively but little shorter; first longer than sixth, much exceeding secondaries. Tail moderate, a little shorter than the wings; slightly emarginate and rounded. Feathers rather narrow; oval at the end. No streaks on the head or body; color above uniform on the head, back; or rump, separately or on all together. Belly white; outer tail-feathers white. Young birds streaked above and below.

"The essential characters of this genus are the middle toe rather shorter than the short tarsus; the lateral toes slightly unequal, the outer reaching the base of the middle claw; the tail a little shorter than the wings, slightly emarginate. In *Junco cinereus* the claws are longer; the lower mandible a little lower than the upper." (*Hist. N. Am. B.*)

The genus is numerously represented in the western portions of the continent, where no less than nine species occur (one of them, *J. hyemalis*, as a straggler, and two—*J. insularis*, of Guadalupe I., and *J. bairdi*, of Lower California—not coming within the United

States). In Eastern North America only two species occur, and one of these (*J. oregonus*) merely as a straggler. Both belong to the Illinois fauna, and may be distinguished as follows:

1. *J. hyemalis*. Plain blackish gray, or slate-gray the belly and lateral tail-feathers white. (Abundant winter resident.)
2. *J. oregonus*. Head, neck, and jugulum, black; back brownish; rump, only, slate-gray; sides light pinkish brown; belly and lateral tail-feathers white, as in *J. hyemalis*.

Of the western species, *J. aikeni* is larger than *J. hyemalis*, and usually has distinct white wing-bands; the sides ash-gray, and the bill light pinkish. *J. annectens* has the head, neck, jugulum, and upper parts ash-gray (back more brownish), the sides pinkish; bill light pinkish. *J. caniceps* resembles *J. annectens*, but has the back bright rufous and the sides ashy, like the breast. *J. dorsalis* resembles *J. caniceps*, but has the upper mandible black, the lower yellow, and the lower parts grayish white. *J. cinereus* is allied to *dorsalis*, and like that species has the iris bright yellow (in other species, excepting *J. dorsalis*, the eye is dark brown or claret color), but has the rufous of the back extended over the wing-coverts and tertials. Each species, or race, has likewise distinctive proportions and a separate breeding range.

Junco hyemalis (Linn.)

SLATE-COLORED JUNCO.

Popular synonyms. Black Snowbird; Common Snowbird; Slate-colored Snowbird; Gray Snowbird; Eastern Snowbird.

Fringilla hyemalis LINN. S. N. ed. 10, i, 1758, 183.—AUD. Orn. Biog. i, 1831, 72; v, 505, pl. 13.

Niphaea hyemalis AUD. Synop. 1839, 106; B. Am. iii, 1841, 88, pl. 167.

Junco hyemalis SCL. 1857.—BAIRD, B. N. Am. 1858, 468; Cat. N. Am. B. 1859, No. 354.—

COUES, Key, 1872, 141; Check List, 1873, No. 174; 2d ed. 1882, No. 261 ("*hiemalis*");

B. N. W. 1874, 141.—B. B. & R. Hist. N. Am. B. i, 1874, 580, pl. 26, fig. 5.—RIDGW. Nom.

N. Am. B. 1881, No. 217.

Fringilla hudsonia FORST. Philoz. Trans. lxii, 1772, 428.—WILS. Index, vi, 1812, p. xiii.

Fringilla nivalis WILS. Am. Orn. iii, 1810, 129, pl. 16, fig. 6.—NUTT. Man. i, 1832, 491.

HAB. Northern North America, breeding from northern New England to Alaska (Yukon district); in winter, whole of eastern United States, and straggling westward (Colorado, Utah, Arizona, etc.).

"SP. CHAR. Everywhere of a grayish or dark ashy black, deepest anteriorly; the middle of the breast behind and of the belly, the under tail-coverts, and first and second external tail-feathers, white; the third tail-feather white, margined with black. Length, 6.25; wing, about 3.00. In winter washed with brownish. Young streaked above and below.

"The wing is rounded; the second quill longest; the third, fourth, and fifth, successively, a little shorter; the first longer than the sixth. Tail slightly rounded, and a little emarginate. In the full

spring dress there is no trace of any second color on the back, except an exceedingly faint and scarcely appreciable wash of dull brownish over the whole upper parts. The markings of the third tail-feather vary somewhat in specimens. Sometimes the whole tip is margined with brown; sometimes the white extends to the end; sometimes both webs are margined with brown; sometimes the outer is white entirely; sometimes the brownish wash on the back is more distinct." (*Hist. N. Am. B.*)

Some specimens have more or less distinct white wing-bands.

While the Snowbird is known to every one as a common and familiar winter resident, there are few people but to whom its coming and going is a mystery; and the question is often asked, "What becomes of the Snowbirds in summer, and where do they breed?" The summer home of this interesting species includes the colder region of the far North from northern Maine and the more eastern British Provinces to Alaska, north to the Arctic "barren grounds," and along the higher portions of the Alleghanies for an undetermined distance southward.*

"About Calais [Maine], and in all the islands of the Bay of Fundy, and throughout New Brunswick and Nova Scotia," Dr. Brewer "found this by far the most common and familiar species, especially at Pictou, where it abounded in the gardens, in repeated instances coming within the out-buildings to build its nests. In a woodshed connected with the dwelling of Mr. Dawson, my attention was called to the nests of several of these birds, built within reach of the hand, and in places where the family were passing and re-passing throughout the day * * * On my ride from Halifax to Pictou, they reminded me of the common *Spizella socialis*, but were, if anything, more fearless and confiding, coming into the room where the family were at their meals, and only flying away when they had secured a crumb of sufficient size."

In all probability the Snowbird does not breed, even occasionally, anywhere within the limits of the State of Illinois; nevertheless, individuals may in extremely rare instances be found several weeks after others have departed for the North, these having probably received some injury which retards, if it does not altogether prevent,

*On the high mountains of western North Carolina, eastern Tennessee, and northern Georgia, an allied race, or perhaps distinct species, is resident. This has recently (in "The Auk," vol. iii, Jan. 1886, p. 108) been described by Mr. Brewster, as *J. hyemalis carolinensis*.

their migration. Professor Forbes informs me of such an instance which came under his own observation, as follows:

"While on a recent trip to southern Illinois, I astonished myself by shooting, June 9, one mile from the Ohio river, near Elizabethtown, in Hardin county, an adult specimen of the Common Snowbird (*Junco hyemalis*). I killed the bird from a tree in the edge of a wood. I neither heard nor saw another of the species there." (See "Nattall Bulletin," July, 1881, p. 180.)

Junco hyemalis oregonus (Towns.)

OREGON JUNCO.

Popular synonyms. Black-headed Snowbird; Oregon Snowbird.

Fringilla oregona Towns. Jour. Phil. Ac. vii, 1837, 188.—Aud. Orn. Biog. v, 1839, 63, pl. 393.

Niphaa oregona Aud. Synop. 1839, 107; B. Am. iii, 1841, 91, pl. 163.

Junco oregonus Sci. 1857.—BAIRD, B. N. Am. 1858, 466; Cat. N. Am. B. 1859, No. 352.—

COUES, Key, 1872, 141; Check List, 1873, No. 175; 2d ed. 1882, No. 263; B. N. W. 1874, 142.

B. B. & R. Hist. N. Am. B. i, 1874, 584, pl. 26, fig. 2.—RIDGW. Nom. N. Am. B. 1881, No. 218.

HAB. Pacific coast of North America, breeding from higher mountains of southern California north to Sitka; in winter throughout the western United States, and even straggling to the Atlantic States (Kansas, Illinois, etc.)

In its habits and notes this bird is so completely a counterpart of the common eastern Snowbird (*J. hyemalis*) that the writer is unable to discover, from the accounts of writers or from his own experience, any peculiarities whatsoever. It is, however, very different in its plumage, as may be seen from the description given above, and the comparative diagnoses on page 277.

GENUS *PEUCÆA* AUDUBON.

Peucæa Aud. Synop. 1839, 112. Type *Fringilla bachmanii* Aud.

"GEN. CHAR. Bill moderate. Upper outline and commissure decidedly curved. Legs and feet, with the claws, small; the tarsus about equal to the middle toe; the lateral toes equal, their claws falling considerably short of the middle one; the hind toe reaching about to the middle of the latter. The outstretched feet reach rather beyond the middle of the tail. The wing is very short, reaching only to the base of the tail; the longest tertials do not exceed the secondaries, while both are not much short of the primaries; the outer three or four quills are graduated. The tail is considerably longer than the wings; it is much graduated laterally; the feathers, though long, are peculiarly narrow, linear, and elliptically rounded at the ends.

"Color beneath plain whitish or brownish, with a more or less distinct dusky line each side of the chin. Above with broad obsolete brown streaks or blotches. Crown uniform, or the feathers edged with lighter." (*Hist. N. Am. B.*)

Only one species of this southern genus is known to occur in Illinois. Another however, may be expected, at least as a straggler, and for this reason the comparative characters of the two are given here.

1. *P. æstivalis*. *Adult*: Above reddish brown, streaked with gray, and usually spotted on the back with black; beneath dull buffy, whitish on the belly. Middle tail-feathers without distinct bars.
α. æstivalis. Crown streaked with blackish, and black streaks on back always very distinct. *Hab.* Florida and lower Georgia.
β. bachmanii. Crown without black streaks, and black streaks on back frequently obsolete; general coloration much more "sandy" above, and clearer, or less dingy, buff below. *Hab.* North and South Carolina, west to eastern Texas, north to southern Illinois and Indiana.
2. *P. cassinii*. Above brownish gray, spotted with grayish brown and black, but with no rusty; lower parts nearly uniform brownish white or pale brownish gray. Middle tail-feathers very distinctly barred with dusky. *Hab.* Southwestern U. S., north to Kansas.

Peucea æstivalis bachmanii (Aud.)

BACHMAN'S SPARROW.

Popular synonyms. Illinois Sparrow; Oak-wood Sparrow; Bachman's Finch.

Peucea æstivalis RIDGW. Am. Nat., July 1872, 430 (Wabash Co., Illinois); Ann. N. Y. Lyc. x, Jan. 1874, 573 (do.); Proc. Boston Soc. xvi, Feb. 18, 1874, 308, 326 (do., summer resid.); Bull. Nutt. Orn. Club, iii, Oct. 1878, 164 ("extremely local and quite rare").—NELSON, Bull. Essex. Inst., ix, 1877, 36, 49 (Mt. Carmel, Wabash Co., and Fox Prairie, Richland Co., Illinois).

Peucea illinoënsis RIDGW. Bull. Nutt. Orn. Club, Oct. 1879, 219 (southern Illinois to central Texas).

Peucea æstivalis illinoënsis RIDGW. Nom. N. Am. B, 1881, No. 226a.—COUES, 2d Check List, 1882, No. 252.

Peucea æstivalis bachmani BREWST. Auk, ii, Jan. 1885, 106.

HAB. Open woods, old fields, etc., in semi-prairie districts of the lower Mississippi Valley and Gulf States; north in summer to Richland, Lawrence, and Wabash counties, Illinois; Knox and Monroe counties,* Indiana; and Nelson county, Kentucky; east to Lookout Mountain, Tennessee, Alabama, and the Carolinas; southwest to "Lower Cross Timbers" and "Post Oak Woods" of Cook county, Texas.

SP. CHAR. *Adult*. Above sandy ferruginous, indistinctly streaked with light ash-gray, these streaks broadest on the back and middle line of the crown; interscapulars sometimes marked with narrow central streaks of black. Outer surface of the wings light ferruginous, the greater coverts less reddish and edged with paler; tertials dusky brown, bordered terminally with pale reddish ashy; outer surface of the secondaries ferruginous. Tail uniform grayish brown, the edges of the feathers more ashy. Sides of the head and neck, throat, jugulum, and entire sides, deep dingy buff, this color most distinct across

*In a letter dated April 27, 1884, Professor David S. Jordan, President of the Indiana State University, writes me as follows: "It may perhaps interest you to know that two specimens of *Peucea æstivalis illinoënsis* have been taken at Bloomington (April 24). They were shot in a brush heap."

the breast, paler on the throat and chin; a postocular streak of ferruginous along the upper edge of the auriculars; sides of the neck streaked with ferruginous; an indistinct dusky streak on each side of the throat, along the lower edge of the malar region; abdomen dull white; crissum creamy buff; edge of the wing, from the carpal to the carpo-phalangeal joint, bright yellow. Bill pale horn-color, the maxilla darker; iris brown; legs and feet pale brown.

Total length, about 6.00; wing, 2.25-2.60 (2.51); tail, 2.40-2.95 (2.69); bill, from nostril to tip, .30-.33; depth through base, .27-.30 (.29); tarsus, .70-.82 (.77); middle toe, .55-.60 (.59). *

Compared with typical *P. æstivalis*, in corresponding plumage, the differences of coloration are at once apparent. The upper parts are much paler, and more "sandy" in hue, and the black mesial streaks which in *æstivalis* mark all the feathers (except those of the nape and wings) are either entirely wanting, or confined to the interscapular region; the breast and sides are very distinctly ochraceous buff, these parts in *æstivalis* being dull buffy grayish. The proportions are very nearly the same in the two species, but *bachmanii* has a longer wing and a thicker bill, the average of five specimens, compared with six of *æstivalis*, being 2.51 and 0.29 respectively, against 2.40 and 0.26. *P. arizonæ* is so different as scarcely to need comparison, having, like *æstivalis*, the whole crown streaked with black; the general hue of the upper parts more of a hair-brown, and the lower parts nearly uniform pale buffy grayish, the abdomen not conspicuously lighter. It is also larger, measuring, wing 2.60, and tail 2.85.

While little is really known regarding the distribution of this species in Illinois, it probably occurs locally—that is, in suitable localities—throughout that portion of the State lying south of the parallel of 39°; and perhaps it extends still further north. It is emphatically a bird of open oak woods, where large white and post oaks prevail, with grass land immediately adjoining, or where the intervals between the trees consist of sward rather than undergrowth; but neglected fields, grown up to weeds, and in which old dead trees are left standing, are also its favorite haunt.

Bachman's Sparrow first came under my observation early in June, 1871, when several were seen and others heard, about half-way between Mount Carmel and Olney, the former in Wabash, the latter in Richland county, Illinois.

*These measurements represent the extremes and averages of ten adults.

After leaving this locality the species was lost sight of until the 11th of August following, upon our return to Mount Carmel. At the latter place it was found to be rather rare in certain places just outside the town limits, the localities frequented being invariably neglected weedy fields in which scattered dead trees were standing. Unlike most birds, this species sang with the greatest vigor, and frequently during the sultry midday, when the sky was brightest and the heat intense—the thermometer ranging from 90° to 103° in the shade. The song, while reminding one somewhat of the plaintive chant of the Field Sparrow (*Spizella pusilla*), was far sweeter and altogether louder; the modulation, as nearly as can be expressed in words, resembling the syllables *théééééé-thut, lut, lut, lut*, the first being a rich silvery trill, pitched in a high musical key, the other syllables also metallic, but abrupt, and lower in tone.

In July and August, 1875, several specimens of this species were collected by Messrs. E. W. Nelson and F. T. Jencks in the vicinity of Mount Carmel and on Fox Prairie, the latter in Richland county, about thirty-five miles to the northward of Mount Carmel. Mr. Nelson thus records his observations (*Bull. Essex Inst.*, Vol. IX., p. 38):

"Rather common. Those obtained were found about the fences or brush piles in half-cleared fields. They were shy and quite difficult to secure from their habit of diving into the nearest shelter when alarmed, or skulking, wren-like, along the fences, dodging from rail to rail. One was observed singing from a fence stake, but seeing the intruder it stopped abruptly and darted into a patch of weeds."

GENUS MELOSPIZA BAIRD.

Melospiza BAIRD, Birds N. Am. 1858, 478. Type, *Fringilla melodia* WILS., *F. fasciata* GMEL.

"GEN. CHAR. Body stout. Bill conical, very obsoletely notched, or smooth; somewhat comprssed. Lower mandible not so deep as the upper. Commissure nearly straight. Gonys a little curved. Feet stout, not stretching beyond the tail; tarsus a little longer than the middle toe; outer toe a little longer than the inner; its claws not quite reaching to the base of the middle one. Hind toe appreciably longer than the middle one. Wings quite short and rounded, scarcely reaching beyond the base of the tail; the tertials considerably longer than the secondaries; the quills considerably graduated; the fourth longest; the first not longer than the tertials, and almost the shortest of the primaries. Tail moderately long, rather longer from coccyx than the wings, and considerably graduated; the feathers oval at the tips, and not stiffened. Crown and back similar in color, and streaked; beneath thickly streaked, except in *M. georgiana*. Tail immaculate. Usually nest on ground; nests strongly woven of grasses and fibrous stems; eggs marked with rusty brown and purple on a ground of a clay color,"

"This genus differs from *Zonotrichia* in the shorter, more graduated tail, rather longer hind toe, much more rounded wing, which is shorter; the tertiaries longer; the first quill almost the shortest, and not longer than the tertials. The under parts are spotted; the crown streaked, and like the back." (*Hist. N. Am. B.*)

The three species which occur in eastern North America (one of them peculiar to the Atlantic side) may be distinguished by the following characters:

- A.** Breast and sides distinctly streaked, at all ages.
 - a.* Maxillary stripe and jugulum white, like other lower parts, the streaks on breast broad, cuneate.
 - 1. *M. fasciata*. Above rusty grayish, streaked with brown and black. Wing about 2.70; tail nearly 3.00.
 - b.* Maxillary stripe and jugulum buff, the other lower parts chiefly white; streaks on jugulum linear.
 - 2. *M. lincolni*. Above olive-brown, streaked with black. Wing 2.60, or less; tail 2.50, or less.*
- B.** Breast and sides without streaks, except in young (first plumage).
 - 3. *M. georgiana*. Breast and sides of head ashy; wings chestnut-rufous; back olive-brown, broadly streaked or spotted with black. *In breeding plumage*, crown (of both sexes) bright chestnut.

Melospiza fasciata (Gmel.)

Fringilla fasciata GMEL. S. N. i, 1788, 922.

Melospiza fasciata SCOTT, Am. Nat. x, 1876, 18.—RIDGW. Nom. N. Am. B. 1881, No. 231.—COUES, 2d Check List, 1882, No. 244.

Fringilla melodia WILS. Am. Orn. ii, 1810, 125, pl. 16, fig. 4.—AUD. Orn. Biog. i, 1831, 126; v, 507, pl. 25; Synop. 1839, 120; B. Am. iii, 1841, 147, pl. 189.—NUTT. Man. i, 1832, 486.

Melospiza melodia BAIRD, B. N. Am. 1858, 477; Cat. N. Am. B. 1859, No. 227.—COUES, Key, 1872, 139; Check List, 1873, No. 146; B. N. W. 1874, 138.—B. B. & R. Hist. N. Am. B. ii, 1874, 19, pl. 27, fig. 6.

HAB. Eastern United States and British Provinces, west to, and including, the Great Plains; wintering from about 50° to the Gulf coast, breeding in northern States and along the Atlantic sea-board. (In western portions of the continent, represented by numerous local or geographical races.)

"SP. CHAR. General tint of upper parts rufous and distinctly streaked with rufous-brown, dark brown and ashy-gray. The crown is rufous, with a superciliary and median stripe of dull gray, the former lighter; nearly white anteriorly, where it sometimes has a faint shade of yellow, principally in autumn; each feather of the crown with a narrow streak of black, forming about six narrow lines. Interscapulars black in the center, then rufous, then pale grayish on the margin, these three colors on each feather very sharply contrasted. Rump grayer than upper tail-coverts, both with obsolete dark streaks. There is a whitish maxillary stripe, bordered above and below by one of dark rufous brown, and with another from behind the eye. The under parts are white; the jugulum and sides of body streaked with clear dark brown, sometimes with a rufous suffusion. On the middle of the breast these marks are rather aggregated so as to form a spot. No distinct white on tail or wings. Length of male, 6.50; wing, 2.58; tail, 3.00. Bill pale brown above; yellowish at base beneath. Legs yellowish.

* In western specimens the tail is sometimes half an inch longer.

"Specimens vary somewhat in having the streaks across the breast more or less sparse, the spot more or less distinct. In autumn the colors are more blended, the light maxillary stripe tinged with yellowish, the edges of the dusky streaks strongly suffused with brownish rufous.

"The young bird has the upper parts paler, the streaks more distinct; the lines on the head scarcely appreciable. The under parts are yellowish; the streaks narrower and more sharply defined dark brown." (*Hist. N. Am. B.*)

While the Song Sparrow breeds in the extreme northern part of Illinois, it is known in the more southern portions only as a winter resident. This is somewhat remarkable, since along the Atlantic coast it is one of the most abundant summer residents throughout Maryland and Virginia, in the same latitudes as southern Illinois. The writer has elsewhere (*Proc. Boston Soc. Nat. Hist. Vol. XVI., 1874, p. 9*) called attention to this fact, as follows:

"In southern Iowa, according to Mr. Trippe (*Proc. Boston Soc. Nat. Hist., Oct., 1872, p. 237*), the Song Sparrow is 'abundant in spring and fall, but not observed to breed. Shy and retiring, a complete contrast to the eastern Song Sparrow.' In southern Illinois this is also the case, the species being there a winter sojourner, abundant, but very retiring, inhabiting almost solely the bushy swamps in the bottom-lands, *and unknown as a song bird*. The same are also probably its habits throughout Illinois and the adjacent districts. This is a remarkable instance of variation in habits with longitude of one geographical race, since in the Atlantic States it breeds abundantly, as far south at least as the parallel of 38°, and is besides one of the most familiar of the native birds."

As far north at least as Wabash, Lawrence, and Richland counties, in this State, the Song Sparrow makes its appearance in the fall along with the White-throated and Swamp Sparrows, and remains all winter in company with these and other species, departing with them in the spring. I have there heard its song but on two or three occasions, and then only in the spring, just before they took their departure.*

The song of this bird, although sufficiently fine to attract attention, is by no means equal to that of many other species of its

* Since the above was written, Mr. J. A. Balmer, of Paris, Edgar county, has informed me that the Song Sparrow is a not uncommon summer resident of that vicinity, and has sent a nest and eggs, obtained in his garden, to prove the correctness of his identification.

family. But this Sparrow is so abundant and so familiar in its habits, that it is better known than most others; it is also very liberal with the supply of music it gives us; and these facts, taken together, undoubtedly have more to do with its popularity than has the quality of its song.

Melospiza lincolnii (Aud.)

LINCOLN'S SPARROW.

Popular synonyms. Lincoln's Finch; Lincoln's Song Sparrow.

Fringilla lincolnii AUD. Orn. Biog. ii, 1834, 539, pl. 193.—NUTT. Man. 2d ed. i, 1840, 569.

Peucaea lincolnii AUD. Synop. 1839, 113; B. Am. iii, 1841, 116, pl. 177.

Melospiza lincolnii BAIRD, B. N. Am. 1858, 482; Cat. N. Am. B. 1859, No. 363.—COUES, Key, 1872, 138; Check List, 1873, No. 167; 2d ed. 1882, No. 242; B. N. W. 1874, 135.—B. B. & R. Hist. N. Am. B. ii, 1874, 31, pl. 27, fig. 13.—RIDGW. Nom. N. Am. B. 1881, No. 234.

HAB. Northern North America and higher mountains of western United States, breeding, at high elevations, nearly to the Mexican boundary; thence northward to Alaska (Yukon district) and Labrador, besides various intermediate points; winters in Southern States, Mexico, and Guatemala. (NOTE. The distribution of this bird corresponds very closely, at all seasons, with that of *Zonotrichia leucophrys*. In the Yukon and McKenzie River districts, however, instead of the latter it is associated with the *Z. intermedia*,—otherwise their respective distribution is quite identical.)

"SP. CHAR. General aspect above, that of *M. melodia*, but paler and less reddish. Crown dull chestnut, with a median and lateral or superciliary ash-colored stripe; each feather above streaked centrally with black. Back with narrow streaks of black. Beneath white, with maxillary stripe curving round behind the ear-coverts; a well-defined band across the breast, extending down the sides, and the under tail-coverts, of brownish yellow. The maxillary stripe margined above and below with lines of black spots and a dusky line behind the eye. The throat, upper part of breast, and sides of the body, with streaks of black, smallest in the middle of the former. The pectoral bands are sometimes paler. Bill above dusky; base of lower jaw and legs yellowish. Length, 5.60; wing, 2.60. (*Hist. N. Am. B.*)

Instead of being the rare bird that it is commonly supposed to be, Lincoln's Sparrow is at times almost as numerous as the Swamp Sparrow; and the fact that it associates freely with the latter species, which it closely resembles in habits and general appearance, may in a measure account for its supposed scarcity. In the southern portion of the State a greater or less number usually pass the winter in company with *M. georgiana*, in the dense brushwood and rank dead herbage of swamps and marshes, in the

bottom-lands. In the northern parts, however, according to Mr. Nelson, it is migratory. Mr. Nelson's remarks concerning it are as follows:

"Common during the migrations, from May 8th to 20th, and September 20th to October 15th. Have seen several specimens during the breeding season, and the last of May, 1875, as I was walking through a patch of weeds, a female started from a few feet in advance of me, while my attention was attracted in another direction, and ran off with half-spread wings. It was shot, and showed unmistakable sign of incubation, but a protracted search failed to reveal the nest. Specimens were taken in July, 1875, near Waukegan, by Mr. Rice."

Melospiza georgiana (Lath.)

SWAMP SPARROW.

Popular synonyms. Swamp Song Sparrow; Spotted Swamp Sparrow.

Fringilla georgiana LATH. Ind. Orn. i, 1790, 460.—NUTT. Man. i, 1832, 502; 2d ed. i, 1840, 588.
(s. g. *Ammodromus*).

Melospiza georgiana RIDGW. Proc. U. S. Nat. Mus. viii, 1885, 355.

Fringilla palustris WILS. Am. Orn. iii, 1811, 49, pl. 22, fig. 1.—AUD. Orn. Biog. i, 1831, 331; v, 1839, 598, pl. 64.

Ammodromus palustris AUD. Synop. 1839, 111; B. Am. iii, 1841, 110, pl. 175.

Melospiza palustris BAIRD, B. N. Am. 1858, 483; Cat. N. Am. B, 1859, No. 369.—COUES, Key, 1872, 138; Check List, 1873, No. 168; 2d ed. 1882, No. 243; B. N. W. 1874, 137.—B. B. & R. Hist. N. Am. B. ii, 1874, 34, pl. 28, figs. 1, 2.—RIDGW. Nom. N. Am. B. 1881, No. 233.

HAB. Eastern United States and British Provinces, north, occasionally, to Labrador and Newfoundland; west, casually, to Utah; breeding from northern border of United States northward, and wintering chiefly south of 38°.

"SP. CHAR. Middle of crown uniform chestnut; forehead black; superciliary streak, sides of head and back, and sides of neck, ash. A brown stripe behind the eye. Back with broad streaks of black, which are edged with rusty yellow. Beneath whitish, tinged with ashy anteriorly, especially across the breast, and washed with yellowish brown on the sides. A few obsolete streaks across the breast, which become distinct on its sides. Wings and tail strongly tinged with rufous; the tertials black, the rufous edgings changing abruptly to white towards the end. Length, 5.75; wing, 2.40. *Female* with the crown scarcely reddish, streaked with black, and divided by a light line. *Young* conspicuously streaked beneath the head; above nearly uniform blackish.

"In autumn the male of this species has the feathers of the crown each with a black streak, and the centre of the crown with an indistinct light stripe, materially changing its appearance. The forehead is usually more or less streaked with black." (*Hist. N. Am. B.*)

In southern Illinois the Swamp Sparrow congregates in immense numbers—perhaps exceeding those of any other species—in the sheltered swamps of the bottom-lands. It breeds in the northern portion of the State, but how far southward its breeding range extends is as yet undetermined. Mr. Nelson records it as being, in Cook county, “an abundant summer resident, far outnumbering *M. melodia*, although to one who has not frequently visited its favorite marshes at all seasons, this would seem improbable. Arrives the last of March and departs the last of October.”

The habits of this species are in a great measure similar to those of the Song Sparrow, although it is much less familiar than the last-named species, preferring secluded swamps and marshes rather than parks, gardens, and door-yards. In *History of North American Birds* (Vol. II., pp. 35, 36), Dr. Brewer thus describes its song:

“Except in regard to their song, Wilson’s account of their habits, so far as it goes, is quite accurate, although this bird really does have quite a respectable song, and one that improves as the season advances. At first it is only a succession or repetition of a few monotonous, trilling notes, which might easily be mistaken for the song of the Field Sparrow, or even confounded with the feebler chant of the *socialis*, although not so raised as the former, and is much more sprightly and pleasing than the other. Still later its music improves, and more effort is made. Like the Song Sparrow, it mounts some low twig, expands its tail-feathers, and gives forth a very sprightly trill, that echoes through the swampy thicket with an effect which, once noticed and identified with the performer, is not likely to be ever mistaken. Nuttall calls this song loud, sweet, and plaintive. It is to my ear more sprightly than pathetic, and has a peculiarly ventriloquistic effect, as if the performer were at a much greater distance than he really is.”

SUBFAMILY PASSERELLINÆ.

CHAR. Toes and claws very stout; the lateral claws reaching beyond the middle of the middle one; all very slightly curved.

“Bill conical, the outlines straight; both mandibles equal; wings long, longer than the even tail, or slightly rounded, reaching nearly to the middle of its exposed portion. Hind claw longer than its digit; the toe nearly as long as the middle toe; tarsus longer than

the middle toe. Brown above, either uniformly so or faintly streaked; triangular spots below.

"This section embraces a single North American genus, chiefly characterized by the remarkable elongation of the lateral claws, as well as by the peculiar shape and large size of all the claws; the lateral, especially, are so much lengthened as to extend nearly as far as the middle. The only approach to this, as far as I recollect, among United States *Conirostres*, is in *Pipilo megalonyx*, and *Xanthocephalus icterocephalus*. (*Hist. N. Am. B.*)

GENUS *PASSERELLA* SWAINSON.

Passerella SWAINSON, Class. Birds, ii, 1837, 288. Type, *Fringilla iliaca* MERREM.

"GEN. CHAR. Body stout. Bill conical, not notched, the outlines straight; the two jaws of equal depth; roof of upper mandible deeply excavated, and vaulted; not knobbed. Tarsus scarcely longer than the middle toe; outer toe little longer than the inner its claw reaching to the middle of the central one. Hind toe about equal to the inner lateral; the claws all long, and moderately curved only; the posterior rather longer than the middle, and equal to its toe. Wings long, pointed, reaching to the middle of the tail; the tertials scarcely longer than secondaries; second and third quills longest; first equal to the fifth. Tail very nearly even, scarcely longer than the wing. Inner claw contained scarcely one and a half times in its toe proper.

"Color. Rufous or slaty; obsoletely streaked or uniform above; thickly spotted with triangular blotches beneath." (*Hist. N. Am. B.*)

A single species of this genus belongs to North America. It is represented in the West by *P. schistacea*, BAIRD, in the Rocky Mountains and west to the Sierra Nevada; by *P. megarhyncha*, BAIRD, in the southern portion of the Pacific coast ranges, and by *P. unalaschcensis* (GMEL.) along the more northern portion of the Pacific Coast. All these forms intergrade either with one another or with *P. iliaca*, but whether these intergradations are due to hybridism or bear the more important significance which has been assigned to them, future knowledge alone can decide.

Passerella iliaca (Merrem).

FOX SPARROW.

Popular synonyms. Fox-colored Sparrow; Rufous Sparrow.

Fringilla iliaca MERREM, Beit. Gesch. Vog. ii, 1786-87, 49. pl. 10.—NUTT. Man. 1, 1832, 514.—AUD. Orn. Biog. ii, 1834, 58; v, 1839, 512, pl. 108; Synop. 1839, 119; B. Am. iii, 1841, 139, pl. 185.

Passerella iliaca SW. 1837.—BAIRD, B. N. Am. 1853, 488; Cat. N. Am. B. 1859, No. 374.—COUES, Key, 1872, 147; Check List, 1874, No. 188; 2d ed. 1882, No. 282; B. N. W. 1874, 160.—B. B. & R. Hist. N. Am. B. ii, 1874, 59, pl. 78, fig. 2.—RIDGW. Nom. N. Am. B. 1881, No. 235.

Fringilla ferruginea GMEL. S. N. i, 1788, 921.

Fringilla rufa WILS. Am. Orn. ii, 1811, 53, pl. 22, fig. 4.

HAB. Northern North America, including Alaska (except coast from Kodiak eastward); breeding in arctic and subarctic districts, and southeastward to mouth of the St. Lawrence; in winter eastern United States, chiefly south of 40°.

"SP. CHAR. General aspect of upper parts foxy red, the ground-color and the sides of neck being ashy; the interscapular feathers each with a large blotch of fox-red; this color glossing the top of head and nape, sometimes faintly, sometimes more distinctly; the rump unmarked; the upper coverts and surface of the tail continuous fox-red. Two narrow white bands on the wing. Beneath, with under tail-coverts and axillars, clear white; the sides of head and of throat, the jugulum, breast, and sides of body, conspicuously and sharply blotched with fox-red; more triangular across breast, more linear and darker on sides. Sometimes the entire head above is continuously reddish. First quill rather less than fifth. Hind toe about equal to its claw. Length, 7.50; wing, 3.50; tail, 2.90; tarsus, .87; middle toe, without claw, .67; hind claw, .35." (*Hist. N. Am. B.*)

In summer, the ash is more predominant above; in winter, it is overlaid more or less by a wash of rufous, as described above.

Young, first plumage (= "*P. obscura*" VERRILL). "Color above rufous brown, becoming bright rufous on the rump and exposed portion of the tail, but a shade darker than in *P. iliaca*; head uniform brown, with a slight tinge of ash; feathers of the back centred with a streak of darker brown. Wings nearly the same color as the back, with no white bands; outer webs of the quills rufous, inner webs dark brown; secondary coverts rufous, with dark brown centres; primary coverts uniform brown. Beneath dull white, with the throat and breast thickly covered with elongated triangular spots and streaks of dark reddish brown; sides streaked with rufous brown; middle of abdomen with a few small triangular spots of dark brown; under tail-coverts brownish white, with a few small spots of bright rufous; the tibiae dark brown. The auriculars are tinged with reddish brown. Bristles at the base of the bill are numerous, extending over the nostrils. Tail rather long, broad, and nearly even. Third quill longest; second and fourth equal, and but slightly shorter; first intermediate between the fifth and sixth, and one fourth of an inch shorter than the third.

"Length, 6.75; extent of wings, 10.75; wing, 3.35; tarsus, 1 inch."

This stage is stated to be "darker in all parts; the feathers of the back are rufous brown, centred with darker, instead of ash centred with brownish red; the two white bands on the wing are wanting; the breast and throat are thickly streaked with elongated spots of dark reddish brown, while in *P. iliaca* the spots are less numerous, shorter and broader, and bright rufous, and the central part of the throat is nearly free from spots; the under tail-coverts are brownish white, with rufous spots, instead of nearly pure white."

This fine Sparrow, distinguished, as its name indicates, by its bright rufous coloring, is a winter resident in the southern and a migrant in the northern portions of the State. It inhabits the densest thickets where, in company with the Chewink, Cardinal, and other species, it passes much of its time on the ground, scratching among the dead leaves for its food. Its breeding range is essentially identical with that of the Snowbird (*Junco hyemalis*). Those who have heard his song in his summer home

pronounce it a very fine performance. Snatches of this song may be occasionally heard in the spring before the northward exodus, and his notes at this season certainly are remarkable for their richness. In *History of North American Birds* (Vol. II., p. 52), Dr. Brewer thus describes the full song: "In the spring the male becomes quite musical, and is one of our sweetest and most remarkable singers. His voice is loud, clear, and melodious; his notes full, rich, and varied; and his song is unequaled by any of this family that I have ever heard.

SUBFAMILY SPIZINÆ

CHAR. Bill variable, always large, much arched, and with the culmen considerably curved; sometimes of enormous size, and with a greater development backward of the lower jaw, which is always appreciably, sometimes considerably, broader behind than the upper jaw at its base; nostrils exposed. Tail rather variable. Bill generally black, light blue, or red. Wings shorter than in the first group. Gape almost always much more strongly bristled. Few of the species sparrow-like or plain in their appearance; usually blue, red, or black and white; except in one or two instances the sexes very different in color.

"The preceding diagnosis is intended to embrace the brightly colored passerine birds of North America, different in general appearance from the common Sparrows. It is difficult to draw the line with perfect strictness, so as to separate the species from those of the preceding group, but the bill is always more curved, as well as larger, and the colors are brighter. They resemble quite closely, at a superficial glance, the *Coccothraustine*, but may be readily distinguished by the absence of the projecting tufts surrounding the base of the upper mandible, shorter, more rounded wings, and longer tarsi.

"The genera may be most conveniently arranged as follows:
(*Hist. N. Am. B.*)

A. Wings decidedly longer than the tail. Eggs plain blue or white, unspotted.

a. Feet very stout, reaching nearly to the end of the tail. Species terrestrial.

Calamospiza. Bill moderate, the commissure with a deep angle posteriorly and prominent lobe behind it; anteriorly nearly straight; commissure of lower mandible with a prominent angle. Outer toe longer than the inner, both nearly as long as the posterior. Outer four primaries about equal, and abruptly longer than the rest. Tertiaries nearly equal to primaries. Tail-feathers broad at tips. Color black with white spot on wing in male, brownish streaks in female. Nest on or near ground; eggs plain pale blue.

Spiza. Bill weaker, the commissure with a more shallow angle, and much less prominent sinuation behind it; anteriorly distinctly sinuated. Outer toe shorter than inner, both much shorter than the posterior one. First primary longest, the rest successively shorter. Tertiaries but little longer than secondaries. Tail-feathers attenuated at tips. Color: back brown streaked with black; throat white; jugulum yellow or ashy; with or without black spot on fore neck. A yellow or white superciliary stripe. Nest on or near ground; eggs plain pale blue.

b. Feet weaker, scarcely reaching beyond lower tail-coverts; species arboreal.

a. Size large (wing more than 3.50 inches)

Habia. Upper mandible much swollen laterally. Colors: no blue; upper parts conspicuously different from the lower. Wings and tail with white patches; axillars and lining of wing yellow or red. Female streaked. Nest in a tree or bush; eggs greenish, thickly spotted.

Guiraca. Upper mandible flat laterally. Colors: *Male* deep blue, with two rufous bands on wings; no white patches on wings or tail; axillars and lining of wing blue; *female* olive-brown without streaks. Nest in a bush; eggs plain bluish white.

b. Size very small (wing less than 3.00 inches).

Passerina. Similar in form to *Guiraca*., but culmen more curved, mandible more shallow, the angle and situations of the commissure less conspicuous. Color: *Males* more or less blue, without any bands on wing (except in *C. amœna*, in which they are white); *female* olive-brownish. Nest in a bush; eggs plain bluish white (except in *C. ciris*, in which they have reddish spots).

B. Wing and tail about equal. The smallest of American *Coniostres*. Nest in bushes. Eggs white, spotted.

Sporophila. Bill very short and broad, scarcely longer than high, not compressed; culmen greatly curved. Color chiefly black and white, or brown and gray.

Euethia. Bill more triangular, decidedly longer than deep, much compressed; culmen only slightly curved, or perfectly straight. Colors dull olive-green and blackish, with or without yellow about the head.

C. Wing much shorter than the tail.

a. Head crested. Prevailing color red. Bill red, orange, yellow, or whitish.

Pyrrhuloxia. Bill pyrrhuline, very short, and with the culmen greatly convex; shorter than high. Hind claw less than its digit; not much larger than the middle anterior one. Tarsus equal to the middle toe. Nest in bush or low tree; eggs white, spotted with lilac and olive.

Cardinalis. Bill coccythraustine, very large; culmen very slightly convex. Wing more rounded. Feet as in the last, except that the tarsus is longer than the middle toe. Nest in bush or low tree; eggs white, spotted with lilac and olive.

b. Head not crested. Colors black, brown, or olive, without red. Bill dusky, or bluish.

Pipilo. Bill moderate; culmen and commissure curved. Hind claw very large and strong; longer than its digit. Tarsus less than the middle toe. Nest on ground or in low bush; eggs white sprinkled with red, or pale blue with black dots and lines around larger end.

GENUS **PIPILO** VIEILLOT.

Pipilo VIEILLOT. Analyse, 1816, 32. Type, *Fringilla erythrophthalma* LINN.

"GEN. CHAR. Bill rather stout; the culmen gently curved, the gonys nearly straight, the commissure gently concave, with a decided notch near the end; the lower jaw not so deep as the upper; not as wide as the gonys is long, but wider than the base of the upper mandible. Feet large, the tarsus as long as or a little longer than the middle toe; the outer lateral toe a little the longer, and reaching a little beyond the base of the middle claw. The hind claw about equal to its toe; the two together about equal to the outer toe. Claws all stout, compressed, and moderately curved; in some western specimens the claws much larger. Wings reaching about to the end of the upper tail-coverts; short and rounded, though the primaries are considerably longer than the nearly equal secondaries and tertiaries; the outer four quills are graduated,—the first considerably shorter than the second, and about as long as the secondaries. Tail considerably longer than the wings, moderately graduated externally; the feathers rather broad, most rounded off on the inner webs at the end. The colors vary; the upper parts are generally uniform black or brown, sometimes olive; the under white or brown; no central streaks on the feathers. The hood sometimes differently colored." (*Hist. N. Am. B.*)

As in the case of *Passerella*, this genus has a single eastern representative, with several western congeneric, if not conspecific, forms. *Pipilo*, however, reaches its maximum development in Mexico, where are special species not found elsewhere. One of these Mexican species (*P. maculatus*, SWAINS.) passes by gradual transition into *P. arcticus*, SWAINS., on the eastern slope of the Rocky Mountains, and *P. megalonyx*, BAIRD, on the western side of the same range. The latter gradually blends into *P. oregonus*, BELL, in the northern coast range of California, and the excessively humid, densely wooded Pacific water-shed to the northward. An approach to an intergradation between *P. arcticus* and the eastern *P. erythrophthalmus* was first noted by Professor Baird, in "Birds of North America," p. 513, where mention is made of a specimen from Fort Leavenworth, Kansas, which had "a few white spots on the scapulars only, the wing-coverts without them, exhibiting an approach to *P. arcticus*." On this basis the conspecific relation of the two forms has been argued by at least one author; but the circumstance that two examples of similar character (one of them even more distinctly spotted than the Fort Leavenworth specimen) have been obtained in the vicinity of Washington, D. C., shows how slow we should be to base so important a conclusion upon a fact of this character, however suggestive it may be. Many mistakes of the kind have been made by thus assuming intergradation without sufficient evidence to support the assumption.

Pipilo erythrophthalmus (Linn.)

TOWHEE.

Popular synonyms. Jaree; Chewink; Towink; Ground Robin; Turkey Sparrow.

Fringilla erythrophthalma LINN. S. N. ed. 12, i, 1766, 318.—NUTT. Man. i, 1832, 515.—AUD. Orn. Biog. i, 1832, 150; v, 1839, 511, pl. 29.

Emberiza erythrophthalma GMEL. S. N. i, 1788, 874.—WILS. Am. Orn. vi, 1812, 90, pl. 53.

Pipilo erythrophthalma VIEILL. Gal. Ois. i, 1824, 109, pl. 80.—AUD. Synop. 1839, 124; B. Am. iii, 1841, 167, pl. 195.—BAIRD, B. N. Am. 1858, 512; Cat. N. Am. B. 1859, No. 391.—COUES, Key, 1872, 151; Check List, 1873, No. 204; 2d ed. 1882, No. 301; B. N. W. 1874, 173.—B. B. & R. Hist. N. Am. B. ii, 1874, 106, 109, pl. 31, figs. 2, 3.—RIDGW. Nom. N. Am. B. 1881, No. 237.

HAB. Eastern United States and British Provinces, west to Minnesota, eastern Kansas, and eastern Texas, resident south of 40°. (In Florida replaced by *P. erythrophthalmus allenii*, a smaller race, with white of wings and tail more restricted, and eyes yellowish or white instead of bright red.)

"SP. CHAR. Upper parts generally, head and neck all round, and upper part of the breast, glossy black, abruptly defined against the pure white which extends to the anus, but is bounded on the sides and under the wings by light chestnut, which is sometimes

streaked externally with black. Feathers of throat white in the middle. Under tail-coverts similar to sides, but paler. Edges of outer six primaries with white at the base and on the middle of the outer web. Inner two tertiaries also edged externally with white. Tail feathers black; outer web of the first, with the ends of the first to the third, white, decreasing from the exterior one. Outermost quill usually shorter than ninth, or even than secondaries; fourth quill longest, fifth scarcely shorter. Iris red; said to be sometimes paler, or even white, in winter. Length, 8.75; wing, 3.75; tail, 4.10. Bill black; legs flesh-color. *Female* with black replaced by a rather rufous brown."

"The tail feathers are only moderately graduated on the sides; the outer about .40 of an inch shorter than the middle. The outer tail-feather has the terminal half white, the outline transverse; the white of the second is about half as long as that of the first; of the third half that of the second. The chestnut of the sides reaches forward to the back of the neck, and is visible when the wings are closed.

"A young bird has the prevailing color reddish olive above, spotted with lighter; beneath brownish white, streaked thickly with brown." (*Hist. N. Am. B.*)

Next to the splendid Cardinal, the Chewink is decidedly the finest of our terrestrial Fringillidæ, and in some respects is, perhaps, the most attractive of all. Without brilliant or gaudy coloring, his plumage is yet handsome by reason of its bold contrasts. His notes possess a peculiar charm, and notwithstanding his abode is in the thickets of the wildwood and the remote corners of the farm, no bird is more confiding in the presence of man.

The distribution of this species within the State is very general, thickets only being a condition of its presence. In the southern portion it is a permanent resident, but northward it departs in winter.

"Thickets, bushy pastures and barren tracts on the higher grounds are the favorite resorts of this species. It comes early, reaching the Middle States in April. The bottom poles of an old rail fence, among the briars by the woods, is very likely to be its thoroughfare; and at all times it keeps for the most part on or near the ground. Sit down quietly in the thicket, and you will hear its sharp rustle, as it scratches among the dry leaves,—this hen-like scratching, probably in search of food, being one of its marked characteristics of habit. As it flits from bush to bush, never flying far nor high, you can hear the *whir-r-r-r* of its short, rounded, concave wings, and as it opens its long, fan-like tail with a jerking motion, the white markings contrast strongly with the jet-black figure. It hops, and sidles, and dodges about, in and out through

the brush-piles, the brambles, and the thicket, with a nervous, sparrow-like movement, its tail being often thrown up, after the manner of the Chat or Wren. Frequently it calls out *chewink*, or *towhee*, with a sharp and somewhat prolonged aspirate on the second syllable, thus rendering either of these words, which have become its common names, very distinctly; but in order to get the exact effect, the words must be pronounced just so,—with just such an emphasis and intonation.” (“Our Birds in their Haunts,” pp. 577, 578.)

GENUS **CARDINALIS** BONAPARTE.

Cardinalis BONAPARTE, P. Z. S. 1837, 11. Type, *Loxia cardinalis* LINN.

“GEN. CHAR. Bill enormously large; culmen very slightly curved, commissure sinuated; lower jaw broader than the length of the gonys, considerably wider than the upper jaw, about as deep as the latter. Tarsi longer than middle toe; outer toe rather the longer, reaching a little beyond the base of the middle one; hind toe not so long. Wings moderate, reaching over the basal third of the exposed part of the tail. Four outer quills, graduated; the first equal to the secondaries. Tail long, decidedly longer than the wings, considerably graduated; feathers broad, truncated a little obliquely at the end, the corners rounded. Color red [in adult male]. Head crested.

“The essential characters of this genus are the crested head; very large and thick bill, extending far back on the forehead, and only moderately curved above; tarsus longer than middle toe; much graduated wings, the first primary equal to the secondary quills; the long tail exceeding the wings, broad and much graduated at the end.” (*Hist. N. Am. B.*)

Only one species in eastern North America, and none in the west, except along the southern border, where two geographical races, *C. cardinalis superbus*, RIDGW., and *C. igneus*, BAIRD, occur in Arizona and at Cape St. Lucas respectively. In eastern Mexico *C. virginianus coccineus*, RIDGW., replaces *C. cardinalis* proper and *C. superbus*, the latter, however, being the only form in western Mexico. A second species, *C. carneus*, LESS., belongs to the western coast of Central America (Acapulco to Realejo), while a third, *C. phæniceus*, GOULD, is found in northern South America.

Cardinalis cardinalis (Linn.)**CARDINAL.**

Popular synonyms. Redbird; Crested Redbird; Top-knot Redbird; Cardinal Grosbeak; Cardinal Redbird; Corn-cracker; Virginian Redbird; Virginia Nightingale.

Loxia cardinalis LINN. S. N. ed. 10, i, 1758, 172; ed. 12, i, 1766, 300.—WILS. Am. Orn. ii, 1810, 38, pl. 6, figs. 1, 2.

Fringilla cardinalis BP. 1828.—NUTT. Man. i, 1832, 519.—AUD. Orn. Biog. ii, 1834, 336, pl. 159.

Pitylus cardinalis AUD. Synop. 1839, 131; B. Am. iii, 1841, 193, pl. 203.

Cardinalis virginianus BP. List, 1838, 35.—BAIRD, B. N. Am. 1858, 509; Cat. N. Am. B. 1859, No. 390.—COUES, Key, 1872, 151; Check List, 1874, No. 203; 2d ed. 1882, No. 299; B. N. W. 1874, 172.—B. & R. Hist. N. Am. B. ii, 1874, 100, pl. 30, figs. 6, 7.—RIDGW. Nom. N. Am. B. 1881, No. 242.

HAB. Eastern United States, chiefly south of 40°, but occasionally in New York, Connecticut, Massachusetts, etc.; west to Nebraska, Kansas, Indian Territory, and Texas. Resident wherever found.

SP. CHAR. *Adult male.* Uniform vermilion-red, pure beneath, darker and more brownish above. Lores, anterior portion of malar region, chin, and throat, black, this color meeting across forehead at base of culmen. Bill bright vermilion; iris brown; feet horn-color. *Adult female.* Bill, eyes, and feet as in the male. Red of head and body replaced by olive-gray above, and grayish buff or pale fulvous below, the crest, sometimes also the breast, tinged with red. Black of throat, etc., replaced by grayish. *Young.* Bill dusky. Plumage much as in the adult female, but browner.

Male. Total length, 8.75-9.25 inches; extent, 11.10-12.25; wing, 3.75-4.05; tail, 4.10-4.65; culmen, .75; depth of bill at base, .58-.65.

Female. Total length, 8.25-8.45; extent, 11.25-11.50; wing, 3.40-3.80; tail, 3.85-4.40.

The Cardinal Grosbeak is truly one of the glories of our bird-fauna, being unapproachable in the combination of proud bearing and gaudy coloring, and unexcelled in certain qualities of song. Many writers have pronounced his song monotonous, but these have certainly not heard him at his best. The verdict is undoubtedly a just one when applied to many that we have heard; but there is probably more individual variation in quality of song in this bird than in any other. We have listened with peculiar pleasure to some whose vocal performance was characterized by a clearness and mellow richness of tone, a tender and passionate expression, and persistent vigor, that together were wholly unique. Even the females are good singers, though, as a rule, inferior to the males, and it is extremely probable that the impressions which some writers have received were derived from the songs of birds of this sex.

In the southern portion of the State, few birds are more abundant, it being a common thing in some localities to hear several males singing in earnest rivalry; and the writer has at one time

seen three males and two females near together, picking up corn which had been dropped upon a railroad track from a passing train. Except possibly in the extreme northern portion of the State it is a permanent resident, being apparently not affected in the least by changes in the weather.

GENUS **HABIA** REICHENBACH.

Habia REICH. Syst. Av. June 1, 1850, pl. lxxviii. Type *Guiraca melanocephala* SWAINS.

Hedymeles CABAN. Mus. Hein. i, 1851, 153. Type *Loxia ludoviciana* LINN.

Zamelodia COUES, Bull. Nutt. Orn. Club, v, April, 1880, 93. Same type.

"GEN. CHAR. Bill very large, much swollen; lower mandible scarcely deeper than the upper; feet almost coccothraustine; tarsi and toes very short, the claws stronger and much curved, though blunt. First four primaries longest, and nearly equal, abruptly larger than the fifth. Tail broad, perfectly square. Colors: Black, white and red, or black, cinnamon, yellow, and white, on the male; the females brownish, streaked, with the axillars and lining of the yellow." (*Hist. N. Am. B.*)

The only known species of this genus are North American and may be distinguished as follows:

COMMON CHARACTERS. *Males*. Head and upper parts (except rump) deep black. Two broad bands across coverts, a large patch on base of primaries, and terminal half of inner webs of tail-feathers, pure white. Breast carmine or cinnamon; axillars and lining of wing carmine or gamboge. *Females*. Black replaced by ochraceous brown; other parts more streaked.

H. ludoviciana. Rump and lower parts white; lining of wing, and patch on breast, rosy carmine. No nuchal collar. *Female*. Lining of wing saffron-yellow; breast with numerous streaks. *Hab.* Eastern Province of North America, south, in winter, to Ecuador.

H. melanocephala. Rump and lower parts cinnamon; lining of wing and middle of abdomen gamboge-yellow. A nuchal collar of cinnamon. *Female*. Lining of wing lemon-yellow; breast without streaks; abdomen tinged with lemon-yellow.

Habia ludoviciana (Linn.)

ROSE-BREADED GROSBEEK.

Popular synonyms. Rose-breasted Song Grosbeak; Red-breasted Grosbeak; Potato-bug Bird.

Loxia ludoviciana LINN. S. N. ed. 12, i, 1766, 306.—WILS. Am. Orn. ii, 1810, 135, pl. 17, fig. 2.

Fringilla ludoviciana BP.—NUTT. Man. i, 1832, 527.—AUD. Orn. Biog. ii, 1834, 166; v, 1839, 513, pl. 127.

Guiraca ludoviciana SW. 1837.—BAIRD, B. N. Am. 1858, 497; Cat. N. Am. B. 1859, No. 380.

Goniaphea ludoviciana "BOWDITCH" COUES, Key, 1872, 148; Check List, 1874, No. 193; B. N. W. 1874, 166.

Coccothraustes ludoviciana AUD. Synop. 1839 133; B. Am. iii 1841, 209, pl. 205.

Hedymeles ludoviciana CABAN. 1851.—B. B. & R. Hist. N. Am. B. ii, 1874, 70, pl. 30, figs. 4, 5.

Zamelodia ludoviciana COUES, Bull. Nutt. Orn. Club, v, April, 1880, 93; 2d Check List, 1882, No. 259.—RIDGW. Nom. N. Am. B. 1881, No. 244.

Loxia rosea WILS. Am. Orn. ii, 1810, 135.

HAB. Eastern temperate North America, breeding from about 40° (approximately) north to Labrador and the Saskatchewan; winters in Cuba, eastern Mexico, Central America, and northern South America, as far as Ecuador.

"SP. CHAR. Upper parts generally, with head and neck all round, glossy black. A broad crescent across the upper part of the breast, extending narrowly down to the belly, axillaries, and under wing-coverts, carmine. Rest of under parts, rump, and upper tail-coverts, middle wing-coverts, spots on the tertiaries and inner great wing-coverts, basal half of primaries and secondaries, and a large patch on the ends of the inner webs of the outer three tail-feathers, pure white. Length, 8.50 inches; wing, 4.15.

"Female without the white of quills, tail, and rump, and without any black or red. Above yellowish brown streaked with darker; head with a central stripe above, and a superciliary on each side, white. Beneath dirty white, streaked with brown on the breast and sides. Under wing-coverts and axillars saffron-yellow.

"In the male the black feathers of the back and sides of the neck have a subterminal white bar. There are a few black spots on the sides of the breast just below the red.

"The young male of the year is like the female, except in having the axillaries, under wing-coverts, and a trace of a patch on the breast, light rose-red.

"The depth of the carmine tint on the under parts varies a good deal in different specimens, but it is always of the same rosy hue." (*Hist. N. Am. B.*)

As may be conjectured from its name, the Rose-breasted Grosbeak is a lovely bird, the fully adult male being decked with a tricolored plumage of deepest black, purest white, and richest rose-red. In the southern portion of the State the species is transient, passing rather hurriedly through in spring and fall; but in the northern portions (perhaps more than the northern half), it is a summer resident. The Rose-breasted Grosbeak is even more remarkable for its beautiful song than for its richness of plumage, and is therefore, and also on account of other qualities which commend it, highly prized as a cage-bird. Says Dr. Brewer:*

"Dr. Hoy, of Racine, supplies some interesting information in regard to the habits and nesting of this species. On the 15th of June, within six miles of that city, he found seven nests, all within a space of not over five acres, and he was assured that each year they resort to the same locality and nest thus socially. Six of these nests were in thorn-trees, all within six to ten feet from the ground, and all were in the central portion of the top. Three of the four parent birds sitting on the nests were males, and this he was told was usually the case. When a nest was disturbed, all the neighboring Grosbeaks gathered around and appeared equally interested. Both nest and eggs so closely resemble those of the Tanagers that it is difficult to distinguish them. Their position is, however, usually different, the Grosbeaks generally nesting in the central portion of a small tree, the Tanagers being placed on a horizontal limb."

*Hist. N. Am. B. vol. ii, pp. 72, 73.

Nor is the Rose-breasted Grosbeak purely an ornamental bird. On the other hand he is one of the most useful that we have as a destroyer of noxious insects. In many parts of the Mississippi Valley he is known as the "Potato-bug Bird," from the fact that he is particularly fond of that most disastrous pest of the farmer.

GENUS *GUIRACA* SWAINSON.

Guiraca SWAINSON, Zool. Jour. iii, Nov. 1827, 350. Type, *Loxia cærulea* LINN.

"GEN. CHAR. Bill very large, nearly as high as long; the culmen slightly curved with a rather sharp ridge; the commissure conspicuously angulated just below the nostril, the posterior leg of the angle nearly as long as the anterior, both nearly straight. Lower jaw deeper than the upper, and extending much behind the forehead; the width greater than the length of the gonys, considerably wider than the upper jaw. A prominent knob in the roof of the mouth. Tarsi shorter than the middle toe; the outer toe a little longer, reaching not quite to the base of the middle claw; hind toe rather longer than to this base. Wings long, reaching to the middle of the tail; the secondaries and tertials nearly equal; the second quill longest; the first less than the fourth. Tail very nearly even, shorter than the wings." (*Hist. N. Am. B.*)

Guiraca cærulea (Linn.)

BLUE GROSBEAK.

Loxia cærulea LINN. S. N. ed. 10, i, 1758, 175; ed. 12, i, 1766, 306.—WILS. Am. Orn. iii, 1811, 78, pl. 24, fig. 6.

Guiraca cærulea SWAINS. 1827.—BAND, B. N. Am. 1858, 499; Cat. N. Am. B. 1859, No. 382.

—B. B. & R. Hist. N. Am. B. ii, 1874, 77, pl. 29, figs. 4, 5.—RIDGW. Nom. N. Am. B. 1881, No. 246.—COUES, 2d Check List, 1882, No. 291.

Fringilla cærulea "ILL." LICHT. Preis-Verz. 1823, 22.—AUD. Synop. 1839, 132.

Goniaphia cærulea SCL. 1856.—COUES, Key, 1872, 149; Check List, 1874, No. 195; B. N. W. 1874, 169.

HAB. Southern United States, from Atlantic to Pacific (very local, and irregularly distributed); north to Kansas, Illinois, Pennsylvania, and Connecticut (occasionally) or even to Maine and Canada (accidentally).

"SP. CHAR. Brilliant blue; darker across the middle of the back. Space around base of bill and lores, with tail-feathers, black. Two bands on the wing across the tips of the middle and secondary coverts, with outer edges of tertiaries, reddish brown, or perhaps chestnut. Feathers on the posterior portion of the under surface tipped narrowly with grayish white. Length, 7.25; wing, 3.50; tail, 2.80.

"Female yellowish brown above, brownish yellow beneath; darkest across the breast. Wing-coverts and tertials broadly edged with brownish yellow. Sometimes a faint trace of blue on the tail. The young resembles the female.

"Males from the Pacific coast region (California, Colima, etc.) have tails considerably longer than eastern specimens, while those from California are of a much lighter and less purplish blue, the difference being much the same as between *Sialia sialis* and *S. azurea*.

'Autumnal and winter males have the feathers generally, especially on the back and breast, tipped with light brown, obscuring somewhat the blue, though producing a beautiful appearance.' (*Hist. N. Am. B.*)

So far as we know from the published records, and according to the author's experience, the Blue Grosbeak would appear to be a rare bird in Illinois, even in the southern part of the State. This, considering the fact that it is not uncommon in other portions of the country in the same latitudes, both along the Atlantic coast and in the interior, as well as in California, is inexplicable, unless to be accounted for by the supposition that it has been overlooked by collectors or that it may be not uncommon in portions of the State where no ornithological investigations have been made. That both explanations are in a measure correct is extremely probable; for not only is the Blue Grosbeak a very local bird, but it is also, notwithstanding its size, a very inconspicuous one. Unless seen under the most favorable circumstances the adult male does not appear to be blue, but of an ill-defined dusky color, and may easily be mistaken for a Cow Blackbird (*Molothrus ater*) unless most carefully watched; besides, they usually sit motionless, in a watchful attitude, for a considerable length of time, and thus easily escape observation.

The Blue Grosbeak frequents much the same localities as those selected by the Indigo Bird and Field Sparrow, viz., the thickets of shrubs, briars and tall weeds lining a stream flowing across a meadow or bordering a field, or the similar growth which has sprung up in an old clearing. The usual note is a strong harsh *ptchick*, and the song of the male a very beautiful, though rather feeble, warble, somewhat like that of the Purple Finch, but bearing a slight resemblance also to that of the Rose-breasted Grosbeak. The nest and eggs are like a larger "edition" of those of the Indigo Bird. At least two broods are raised during a season, the writer having found a brood of young, just beginning to fly, on the 13th of September, in Fairfax county, Virginia, where the species was somewhat common.

GENUS *PASSERINA* VIEILLOT.

Passerina VIEILLOT, Analyse, 1816, 30. Type, *Tanagra cyanea* LINN.

Cyanospiza BAIRD, B. N. Am. 1853, 500. Same Type.

"GEN. CHAR. Bill deep at the base, compressed; the upper outline considerably curved; the commissure rather concave, with an obtuse, shallow lobe in the middle. Gonys slightly curved. Feet moderate; tarsus about equal to middle toe; the outer lateral toe barely longer than the inner, its claws falling short of the base of the middle; hind toe about equal to the middle without claw. Claws all much curved, acute. Wings

long and pointed, reaching nearly to the middle of the tail; the second and third quills longest. Tail appreciably shorter than the wings; rather narrow, very nearly even.

"The species of this genus are all of very small size, and of showy plumage, usually blue, red, or green, in well-defined areas. The females plain olivaceous or brownish; paler beneath." (*Hist. N. Am. B.*)

The four species of this genus which have been known to occur in the Eastern Province of the United States may be distinguished by the following characters:

A. Wing with two light bands.

1. *P. amcena*. *Male*: Head, neck, and upper parts verditer-blue, duller on the back; breast cinnamon-rufous, the other lower parts white. *Female*: Above grayish brown, the rump tinged with blue; beneath fulvous-white, the breast more buffy.

B. Wing without light bands.

2. *P. cyanea*. *Male*: Uniform rich greenish cobalt-blue, the head more ultramarine or smalt blue. *Female*: Above dull brown; below brownish white, the breast with indistinct darker streaks.
3. *P. versicolor*. *Cutting edge of upper mandible very concave, and culmen much arched*. *Male*: Bluish purple, the rump and forehead purplish blue, eyelids and occiput dull red. *Female*: Above grayish brown, beneath brownish white.
4. *P. ciris*. *Male*: Eyelids and lower parts vermilion-red; rest of head purplish blue; back bright yellowish green; rump dull red. *Female*: Dull grass-green above, olivaceous yellow beneath. (Young male similar.)

Passerina cyanea (Linn.)

INDIGO BUNTING.

Popular synonyms. Indigo Bird; Green Bird; Blue Linnet; Green Linnet.

Tanagra cyanea LINN. S. N. ed. 12, i, 1766, 315.

Fringilla cyanea WILS. Am. Orn. i, 1810, 100, pl. 6, fig. 5.—NUTT. Man. i, 1832, 473.—AUD. Orn. Biog. i, 1832, 377; v, 1839, 503, pl. 74.

Passerina cyanea VIEILL. Nom. Dict. xxv, 1817, 7; 2d Check List, 1882, No. 295.—RIDGW. Nom. N. Am. B. 1881, No. 248.

Spiza cyanea BP. 1838.—AUD. Synop. 1839, 109; B. Am. iii, 1841, 96, pl. 170.

Cyanospiza cyanea BAIRD, B. N. Am. 1858, 505; Cat. N. Am. B. 1859, No. 387.—COUES, Key, 1872, 150; Check List, 1874, No. 199; B. N. W. 1874, 171.—B. B. & R. Hist. N. Am. B. ii, 1874, 82, pl. 30, figs. 13, 17.

HAB. Eastern United States, north to Maine and Canada, west to the edge of the Great Plains; winters in Central America and Cuba.

"**SP. CHAR.** *Male*. Blue, tinged with ultramarine on the head, throat, and middle of breast; elsewhere with verdigris-green. Lores and anterior angle of chin velvet-black. Wing-feathers brown, edged externally with dull bluish brown. *Female*. Brown above; whitish, obscurely streaked or blotched with brownish yellow, beneath; tinged with blue on shoulders, edges of larger feathers, and on rump. Immature males similar, variously blotched with blue. Very young birds streaked beneath. Length, about 5.75 inches; wing nearly 3.00.

"In this species, which may be considered the type of the genus, the tail is slightly emarginate; the second quill is longest, the first shorter than the fourth." (*Hist. N. Am. B.*)

This exquisite little bird, so inappropriately named *Indigo* Bird—for the blue color of the male is not at all like the color of indigo, but on the contrary is the richest cerulean-blue, shading into ultramarine,—is one of our most abundant and most generally distributed summer residents. It is an associate of the Field Sparrow, Maryland Yellow-throat, Yellow-breasted Chat, and other birds which frequent thickets about the borders of fields, and its sprightly and vigorous, though somewhat harsh song is heard throughout the sultry days of summer, as the singer occupies a prominent position on the summit of a tree, or, as is frequently the case, on a telegraph wire along a railroad.

Passerina ciris (Linn.)

PAINTED BUNTING.

Popular synonyms. Painted Finch; Nonpareil.

Emberiza ciris LINN. S. N. ed. 10, i, 1758, 177; ed. 12, i, 1766, 313.

Fringilla ciris WILS. Am. Orn. iii, 1811, 68, pl. 24, figs. 1, 2.—AUD. Orn. Biog. i, 1832, 279; v, 517, pl. 53.

Passerina ciris VIEILL. Gal. Ois. i, 1824, 81, pl. 66.—RIDGW. Nom. N. Am. B. 1881, No. 251.—COUES, 2d Check List, 1882, No. 292.

Spiza ciris AUD. Synop. 1839, 108; B. Am. iii, 1841, 93, pl. 169.

Cyanospiza ciris BAIRD, B. N. Am. 1858, 503; Cat. N. Am. B. 1859, No. 334.—COUES, Key, 1872, 149; Check List 1874, No. 196.—B. B. & R. Hist. N. Am. B. ii, 1874, 87, pl. 29, figs. 7, 8.

HAB. Southern Atlantic and Gulf States, north to South Carolina and southern Illinois, west to Arizona; south in winter to Panama.

"SP. CHAR. Male. Head and neck all around ultramarine blue, excepting a narrow stripe from the chin to the breast, which, with the under parts generally, the eyelids, and the rump (which is tinged with purplish), are vermilion-red. Edges of chin, loreal region, greater wing-coverts, inner tertiary, and interseapular region, green; the middle of the latter glossed with yellow. Tail-feathers, lesser wing-coverts, and outer webs of quills, purplish blue. Length about 5.50 inches; wing, 2.70.

"Female. Clear dark green above; yellowish beneath. **Young,** like female.

"Tail very slightly emarginated and rounded; second, third, and fourth quills equal; first rather shorter than the fifth.

"The female is readily distinguishable from that of *P. cyanea* by the green instead of the dull brown of the back, and the yellow of the under parts." (*Hist. N. Am. B.*)

The plumage of the Nonpareil, although brilliant, can scarcely be called beautiful, since there is an entire lack of harmony in his tints. The name *Painted* Bunting is therefore peculiarly appropriate,

the juxtaposition of noncomplimentary colors—green, blue, and red—strongly suggesting the inartistic “daubing” of a juvenile would-be artist.

So far as the records are concerned, this species claims a place in the Illinois fauna, from the circumstance that a female was seen by the writer on June 10, 1871, close by the roadside, in Wabash county, and under circumstances which allow of no doubt as to correct identification. The date and also the character of the locality suggest the possibility, if not probability, that a pair were breeding in that vicinity. It will doubtless yet be found breeding in the more southern portions of the State.

The eggs of this species are very different from those of the Indigo Bird, being heavily spotted round the larger end with reddish brown.

GENUS *SPIZA* BONAPARTE.

Spiza BONAP. Jour. Phil. Ac. iv, pt. i, Aug, 1824, 45.—Type, *Emberiza americana* GMEL.

Euspiza BONAP. Saggio, 1832, 141. Same type.

Euspina CABAN. Mus. Hein. i, May, 1851, 133. Same type.

“GEN. CHAR. Bill large and strong, swollen, and without any ridges; the lower mandible nearly as high as the upper; as broad at the base as the length of the gonys, and considerably broader than the upper mandible; the edges much inflexed, and shutting much within the upper mandible; the commissure considerably angulated at the base, then decidedly sinuated. The tarsus barely equal to the middle toe; the lateral toes nearly equal, not reaching to the base of the middle claw; the hind toe about equal to the middle one without its claw. The wings long and acute, reaching nearly to the middle of the tail; the tertials decidedly longer than the secondaries, but much shorter than the primaries; first quill longest, the others regularly graduated. Tail considerably shorter than the wings, though moderately long; nearly even, although slightly emarginate; the outer feathers scarcely shorter. Middle of back only striped; beneath without streaks.” (*Hist. N. Am. B.*)

This genus comes nearest to *Calamospiza*, but has shorter tertials, more slender bill, weaker and more curved claws, etc. It is entirely peculiar to North America,* and contains, so far as known, only two species, one of which is so very rare that but a single specimen has ever been obtained.

*An Old World Bunting (*Emberiza melanocephala* SCOP.) has been referred to *Euspiza*, even by some of the leading European authorities; but it is not only generically distinct, but a member of quite a different group of the Family.

SPECIES.

S. americana. Top and side of head light slate, or ash-gray; forehead tinged with greenish yellow. A superciliary stripe, a malar spot, side of breast, and middle line of breast and belly, yellow. Chin white, throat black, shoulders chestnut. Female with the black of the throat replaced by a crescent of spots. *Hab.* Eastern Province of United States; south in winter to New Granada.

S. townsendi. Body throughout (including the jugulum), dark ash, tinged with brownish on the back and wings. Superciliary and malar stripes, chin, throat, and middle of belly, white. A submalar line and a pectoral crescent of black spots. No chestnut on shoulders. *Hab.* Chester county, Pennsylvania.

Spiza americana (Linn.)**DICK CISSEL.**

Popular synonyms. Black-throated Bunting; Little Field Lark; Little Meadowlark.

Emberiza americana GMEL. S. N. i, 1788, 871.—WILS. Am. Orn. i, 1808, 411; iii, 1811, 86, pl. 3. fig. 2.—NUTT. Man. i, 1832, 461.—AUD. Orn. Biog. iv, 1838, 579, pl. 384; Synop. 1839, 101; B. Am. iii, 1841, 58, pl. 156.

Euspiza americana BP. 1838.—BAIRD, B. N. Am. 1858, 494; Cat. N. Am. B. 1859, No. 378.—COUES, Key, 1872, 148; Check List, 1874, No. 191; B. N. W. 1874, 165; B. B. & R. Hist. N. Am. B. ii, 1874, 65, pl. 23, figs. 11, 12.

Spiza americana RIDGW. Nom. N. Am. B. No. 254.—COUES, 2d Check List, 1882, No. 287.

HAB. Eastern United States in summer, north to Connecticut and Massachusetts (rarely); west to the Great Plains, and, during migration, to Arizona. Winters within the Tropics, as far south as Colombia.

"SP. CHAR. *Male.* Sides of the head, and sides and back of the neck ash; crown tinged with yellowish green and faintly streaked with dusky. A superciliary and short maxillary line, middle of the breast, axillaries, and edge of the wing yellow. Chin, loreal region, patch on side of throat, belly, and under tail-coverts white. A black patch on the throat diminishing to the breast, and ending in a spot on the upper part of the belly. Wing-coverts chestnut. Interseapular region streaked with black; rest of back immaculate. Length, about 6.70; wing, 3.50.

Female with the markings less distinctly indicated; the black of the breast replaced by a black maxillary line and streaked collar in the yellow of the upper part of the breast.

"Among adult males, scarcely two individuals exactly alike can be found. In some the black of the throat is continued in blotches down the middle of the breast, while in others it is restricted to a spot immediately under the head. These variations are not at all dependent upon any difference of habitat, for specimens from remote regions from each other may be found as nearly alike as any from the same locality." (*Hist. N. Am. B.*)

While some other birds are equally numerous, there are few that announce their presence as persistently as this species. All day long, in spring and summer, the males, sometimes to the number of a dozen or more for each meadow of considerable extent, perch

upon the summits of tall weed-stalks or fence-stakes, at short intervals crying out: "*See, see,—Dick, Dick-Cissel, Cissel,*" therefore "Dick Cissel" is well known to every farmer's boy as well as to all who visit the country during the season of clover-blooms and wild roses, when "Dame Nature" is in her most joyous mood.

Perhaps the prevalent popular name of this species is "Little Field Lark" or "Little Meadow Lark," a name suggested by his yellow breast and black jugular spot, which recall strongly the similar markings of the *Sturnella*, and also the fact that the two frequent similar localities. The name "Black-throated Bunting" is probably never heard except from those who have learned it from the books.

The location of the nest varies much with locality, though probably not more than in the case of many other species. At Mount Carmel, all that I found were in clover fields, and built upon or very close to the ground. In Richland county they were almost invariably built in small clumps of coarse weeds, at a height of about a foot above the ground. In Wisconsin, however, according to Dr. Brewer (*Hist. N. Am. B.* Vol. II., p. 68), Dr. P. R. Hoy, of Racine has never found a nest within one foot of the ground, some of them being as elevated as six feet. Of nineteen nests discovered by Dr. Hoy during one season, "ten were built in gooseberry bushes, four on thorn bushes, three among blackberry bushes, one on a raspberry bush, and one on a wild rose."

FAMILY ICTERIDÆ.—THE AMERICAN ORIOLES.

"CHAR. Primaries nine. Tarsi scutellate anteriorly; plated behind. Bill long, generally equal to the head or longer, straight, or gently curved, conical, without any notch, the commissure bending downwards at an obtuse angle at the base. Gonys generally more than half the culmen, no bristles about the base of bill. Basal joint of the middle toe free on the inner side; united half-way on the outer. Tail rather long, rounded. Legs short." (*Hist. N. Am. B.*)

This family is one of those eminently characteristic of the New World, all the species being peculiar to America. It is of course most numerously represented within the Tropics.

Three "subfamilies" have been defined, but their limits are purely arbitrary, it being in some cases difficult to decide whether a species belongs to the genus *Icterus* or *Agelaius*, each typical, respectively, of the so-called "*Icterinæ*" and "*Agelainæ*." These artificial sections are thus defined in *History of North American Birds* (Vol. II., page 147 :

Agelainæ. Bill shorter than, or about equal to, the head; thick, conical, both mandibles about equal in depth; the outlines all more or less straight, the bill not decurved at tip. Tail rather short, nearly even or slightly rounded. Legs longer than the head, adapted for walking; claws moderately curved.

Icterinæ. Bill rather slender, about as long as the head; either straight or decurved. Lower mandible less thick than the upper; the commissure not sinuated. Tarsi not longer than the head, nor than middle toe; legs adapted for perching. Claws much curved.

Quiscalinæ. Tail lengthened, considerably or excessively graduated. Bill as long as, or longer than, the head; the culmen curved towards the end, the tip bent down, the cutting edges inflexed, the commissure sinuated. Legs longer than the head, fitted for walking.

The North American genera may be thus arranged under their respective "subfamily" headings :

Subfamily Agelainæ.

A. Bill shorter than the head. Feathers of head and nostrils as in B.

1. **Dolichonyx.** Tail feathers with rigid stiffened acuminate points. Middle toe very long, exceeding the head.
2. **Molothrus.** Tail with the feathers simple; middle toe shorter than the tarsus or head.

B. Bill as long as the head. Feathers of crown soft. Nostrils covered by a scale which is directed more or less downwards.

3. *Agelaius*. First quill shorter than the second and third. Outer lateral claws scarcely reaching to the base of middle; claws moderate.
4. *Xanthocephalus*. First quill longest. Outer lateral claw reaching nearly to the tip of the middle. Toes and claws all much elongated.
- C. Bill as long as, or longer than, the head. Feathers of crown with the shafts prolonged into stiffened bristles. Nostrils covered by a scale which stands out more or less horizontally.
5. *Sturnella*. Tail feathers acute. Middle toe equal to the tarsus.

Subfamily Icterinæ.

6. *Icterus*. Bill slender, acute, sometimes slightly decurved, about as long as, or a little shorter than, the head. Nostrils as in *Agelaius*. Tail rounded or graduated, about as long as, or slightly longer than, the wing.*

Subfamily Quiscalinæ.

7. *Scolecophagus*. Tail shorter than the wings; nearly even. Bill shorter than the head.
8. *Quiscalus*. Tail longer than the wings; much graduated. Bill as long as, or longer than, the head.

The three so-called subfamilies represent, superficially, three Old World families; viz.: The *Agelainæ* may be said to correspond to the Starlings (*Sturnidæ*), and have been called the American Starlings; the *Icterinæ* may likewise be compared with the Orioles (*Oriolidæ*), and in fact currently, though very improperly, bear the same name. For want of a more distinctive term, that of American Orioles is perhaps defensible, the name "Hang-nests," while very appropriate for the *Icterinæ*, lacking sufficiently exclusive pertinence to make it preferable. The *Quiscalinæ* are very appropriately called Crow-Blackbirds, but they have been termed Grakles by many authors, on account of a supposed resemblance to the true Grakles, or Minos, (*Graculidæ*) of Southern Asia.

Some of the *Agelainæ* (notably the genera *Dolichonyx* and *Molothrus*) present a very close resemblance to certain *Fringillidæ* in their general form, especially in the shortness and conical shape of the bill. They may, however, be readily separated by the family characters, as given on page 43.

All of the genera characterized in the above synopsis belong to the Illinois fauna, no others occurring in North America.

* Decidedly shorter than the wing in the subgenus *Yphantes*, to which the Baltimore and Bullock's Orioles (*I. galbula* and *I. bullocki*) belong.

GENUS **DOLICHONYX** SWAINSON.

Dolichonyx SWAINSON, Zool. Journ. iii, 1827, 351. Type, *Emberiza oryzivora* LINN.

"GEN. CHAR. Bill, short, stout, conical, little more than half the head; the commissure slightly sinuated; the culmen nearly straight. Middle toe considerably longer than the tarsus (which is about as long as the head); the inner lateral toe longest, but not reaching the base of the middle claw. Wings long; first quill longer. Tail-feathers acuminate pointed at the tip, with the shaft stiffened and rigid, as in the Woodpeckers.

"The peculiar characteristic of this genus is found in the rigid acuminate tail-feathers and the very long middle toe, by means of which it is enabled to grasp the vertical stems of reeds or other slender plants." (*Hist. N. Am. B.*)

A peculiarity in the plumage of the only known species is that while the adult male in spring is deep black varied with buff nape and whitish scapulars and rump, this livery is changed at the end of the breeding season for a sober one of streaked yellowish, like that worn by the female throughout the year.

Dolichonyx oryzivorus (Linn.)**BOBOLINK.**

Popular synonyms. Bob Lincoln; Skunk Blackbird (Northern States); Reed Bird, Ortolan (Atlantic coast in Autumn); Rice Bird (South Carolina and Georgia); Butter Bird (Jamaica).

Emberiza oryzivora LINN. S. N. ed. 10, i, 1753, 179; ed. 12, i, 1766, 311.—WILS. Am. Orn. ii, 1810, 48, pl. 12, figs. 1, 2.

Dolichonyx oryzivorus SWAINSON'S Zool. Jour. iii, 1827, 351.—AUD. Synop. 1839 133; B. Am. iv, 1842, 10, pl. 211.—BAIRD, B. N. Am. 1858, 522; Cat. N. Am. B. 1859, No. 399.—COUES, Key, 1872, 154; Check List, 1874, No. 210; B. N. W. 1874, 173; 2d Check List, 1882, No. 312.—B. B. & R. Hist. N. Am. B. ii, 1874, 149, pl. 32, figs. 4, 5.—RIDGW. Nom. N. Am. B. 1881, No. 257.

Icterus agripennis BONAP. Obs. Wilson, 1824, No. 87.—NUTT. Man. i, 1832, 185.—AUD. Orn. Biog. i, 1831, 283; v, 1839, 486, pl. 54.

HAB. Eastern North America, north to the Saskatchewan (lat. 60°), west to or even beyond the Rocky Mountains (Ruby Valley, Nevada, and Salt Lake Valley, Utah, in September); in winter, south through Middle America, West Indies, and South America, to Bolivia, Argentine Republic, and Paraguay; Galapagos.

"SP. CHAR. General color of *male* in spring, black; the nape, brownish cream-color; a patch on the side of the breast, the scapulars, and rump, white, shading into light ash on the upper tail-coverts and the back below the interscapular region. The outer primaries sharply margined with yellowish white; the tertials less abruptly; the tail-feathers margined at the tips with pale brownish ash. In autumn totally different, resembling the female.

"*Female*, yellowish beneath; two stripes on the top of the head, and the upper parts throughout, except the back of the neck and rump, and including all the wing feathers generally, dark brown, all edged with brownish yellow, which becomes whiter near the tips of the quills. The sides sparsely streaked with dark brown, and a similar stripe behind the eye. There is a superciliary and a median band of yellow on the head. Length of male, 7.70; wing, 3.83; tail, 3.15." (*Hist. N. Am. B.* vol. ii, 149.)

In *History of North American Birds* (Vol. II., pp. 150, 151), Dr. Brewer thus describes the habits and song of this species:

"In the earliest approaches of spring, in Louisiana, when small flocks of male Bobolinks made their first appearance, they are said by Mr. Audubon, to sing in concert; and their song thus given is at once exceedingly novel, interesting, and striking. Uttered with a volubility that even borders upon the burlesque and the ludicrous, the whole effect is greatly heightened by the singular and striking manner in which first one singer and then another, one following the other, until all have joined their voices, take up the note and strike in, after the leader has set the example and given the signal. In this manner sometimes a party of thirty or forty Bobolinks will begin, one after the other, until the whole unite in producing an extraordinary medley, to which no pen can do justice, but which is described as very pleasant to listen to. All at once the music ceases with a suddenness not less striking and extraordinary. These concerts are repeated from time to time, usually as often as the flock alights. * * * In New England the Bobolink treats us to no such concerts as those described by Audubon, where many voices join in creating their peculiar, jingling melody. When they first appear, usually after the middle of May, they are in small parties, composed of either sex, absorbed in their courtships and overflowing with song. When two or three male Bobolinks, decked out in their gayest spring apparel, are paying their attentions to the same drab-colored female, contrasting so strikingly in her sober brown dress, their performances are quite entertaining, each male endeavoring to out-sing the other. The female appears coy and retiring, keeping closely to the ground, but always attended by the several aspirants for her affection. After a contest, often quite exciting, the rivalries are adjusted, the rejected suitors are driven off by their more fortunate competitor, and the happy pair begin to put in order a new home. It is in their love-quarrels that their song appears to the greatest advantage. They pour out incessantly their strains of quaint but charming music, now on the ground, now on the wing, now on the top of a fence, a low bush, or the swaying stalk of a plant that bends with their weight. The great length of their song, the immense number of short and variable notes of which it is composed, the volubility and confused rapidity with which they are poured forth, the eccentric breaks, in the midst of which we detect the words "bob-o-link" so distinctly enunciated, unite to form a

general result to which we can find no parallel in any of the musical performances of our other song-birds. It is at once a unique and a charming production. Nuttall speaks of their song as monotonous, which is neither true nor consistent with his own description of it. To other ears they seem ever wonderfully full of variety, pathos and beauty.

"The young, in due time, assume the development of mature birds, and all wear the sober plumage of the mother. And now there also appears a surprising change in the appearance of our gayly attired musician. His showy plumage of contrasting white and black, so conspicuous and striking, changes with almost instant rapidity into brown and drab, until he is no longer distinguishable, either by plumage or note, from his mate or young."

One would suppose that the terrible slaughter carried into the ranks of this species during its autumnal migration would materially diminish its numbers. That this has been the result is a fact which has been noted by many persons resident in those portions of the country where the Bobolink is a familiar summer sojourner.

The Bobolink breeds only in the northern part of Illinois, where, according to Mr. Coale, it is an abundant summer resident. In the middle and southern portions of the State it is transient only, merely passing hurriedly through in spring and fall, but so different in plumage and habits during the two seasons that probably few persons suspect their being the same bird.

GENUS *MOLOTHRUS* SWAINSON.

Molothrus SWAINSON, F. Bor.-Am. ii, 1831, 277. Type, *Fringilla pecoris* GM., = *Oriolus ater* BODD.

"GEN. CHAR. Bill short, stout, about two thirds the length of head; the commissure straight, culmen and gonys slightly curved, convex, the former broad, rounded, convex, and running back on the head in a point. Lateral toes nearly equal, reaching the base of the middle one, which is shorter than the tarsus; claws rather small. Tail nearly even; wings long, pointed, the first quill longest. As far as known, the species make no nest, but deposit the eggs in the nests of other, usually smaller, birds.

"The genus *Molothrus* has the bill intermediate between *Dolichonyx* and *Agelaius*. It has the culmen unusually broad between the nostrils, and it extends back some distance into the forehead. The difference in the structure of the feet from *Dolichonyx* is very great.

"Species of *Molothrus* resemble some of the *Fringillidæ* more than most of the typical *Icteridæ*. The bill is, however, different, the tip

being without notch; the culmen running back farther on the forehead, the nostrils being situated fully one third or more of the total length from its posterior extremity. The entire absence of notch in the bill and of bristles along the rictus are strong features. The nostrils are perfectly free from any overhanging feathers or bristles. The pointed wings, with the first quill longest, or nearly equal to second, and the tail with its broad rounded feathers, shorter than the wings, are additional features to be specially noted. (*Hist. N. Am. B.*)

Molothrus ater (Bodd.)

COWBIRD.

Popular synonyms. Cow Blackbird; Cow-pen Bunting; Lazy Bird (Connecticut); Clod-hopper.

Oriolus ater BODD. Tabl. P. E. 1783, 37.

Molothrus ater GRAY, 1870.—RIDGW. Nom. N. Am. B. 1881, No. 258.—COUES, 2d Check List, No. 313.

Fringilla pecoris GMEL. S. N. i, 1788, 910 (female).

Emberiza pecoris WILS. Am. Orn. ii, 1810, 145, pl. 18, figs. 1, 2, 3.

Icterus pecoris BP. 1824.—NUTT. Man. i, 1832, 178.—AUD. Orn. Biog. i, 1831, 493; v, 1839, 233, 400, pls. 99, 424.

Molothrus pecoris SW. & RICH. F. B. A. ii, 1831, 277.—AUD. Synop. 1839, 139; B. Am. iv, 1842, 16, pl. 212.—BAIRD. B. N. Am. 1858, 524; Cat. N. Am. B. 1859, No. 400.—COUES, Key, 1872, 155; Check List 1874, No. 211; B. N. W. 1874, 180.—B. B. & R. Hist. N. Am. B. ii, 1874, 154, pl. 32, figs. 6, 7.

Fringilla ambigua NUTT. Man. i, 1832, 484 (= young).

HAB. Temperate North America (except Pacific Coast?), north to about 68°; breeds chiefly north of 35°, and winters mainly south of the same parallel, down to southern border of the United States.

"SP. CHAR. Second quill longest; first scarcely shorter. Tail nearly even, or very slightly rounded. Male with the head, neck, and anterior half of the breast light chocolate brown, rather lighter above; rest of body lustrous black, with a violet-purple gloss next to the brown, of steel-blue on the back, and of green elsewhere. Female light olivaceous brown all over, lighter on the head and beneath. Bill and feet black. Length, 8 inches; wing, 4.42; tail, 3.40.

"The young bird of the year is brown above, brownish white beneath: the throat immaculate. A maxillary stripe and obscure streaks thickly crowded across the whole breast and sides. There is a faint indication of a paler superciliary stripe. The feathers of the upper parts are all margined with paler. There are also indications of light bands on the wings. These markings are all obscure, but perfectly appreciable, and their existence in adult birds of any species may be considered as embryonic, and showing an inferiority in degree to the species with the under parts perfectly plain." (*Hist. N. Am. B.*)

The Cowbird is a common species throughout the State. It is resident southward, but only a summer sojourner in the northern portions. It is at all seasons gregarious, associating in small flocks, which follow the furrow made by the ploughman or keep company with the cattle, often alighting upon their backs. The Cowbird builds no nest, but lays its eggs surreptitiously in the nests of other birds. In this it evinces no preference, except that a species smaller than itself is usually selected, and never one very much its superior in size; usually a very much smaller bird is thus imposed on. It makes no attempt, however, to select a species whose eggs more or less resemble its own, but drops its eggs indiscriminately in nests whose owners lay white eggs, plain blue eggs, or speckled eggs. The number of these parasitic eggs which may be found in one nest varies from one to five, and it may be that, in some cases at least, all are deposited by one bird, although it is equally probable that sometimes the eggs of two or more individuals are dropped in the same nest. It is interesting to watch the female when she is searching for a nest in which to deposit the egg she is about to lay. She hunts stealthily through the woods, usually among the undergrowth, and when a nest is discovered, patiently awaits from a convenient hiding place the temporary absence of the parent, when the nest is stealthily and hastily inspected, and if found suitable she takes possession and deposits her egg, when she departs as quietly as she came. The male Cowbird is polygamous, and becomes quite amorous during the breeding season, parading before the females with spread wings and tail, now and then swelling up until he seems ready to burst; but the looked-for catastrophe is prevented by the emission of a ridiculous squeaking song, when he subsides to his original proportions.

GENUS **XANTHOCEPHALUS** BONAPARTE.

Xanthocephalus BONAP. Conspectus, i, 1850, 431. Type, *Icterus icterocephalus* BONAP.

"GEN. CHAR. Bill conical, the length about twice the height; the outlines nearly straight. Claws all very long; much curved; the inner lateral the longest, reaching beyond the middle of the middle claw. Tail narrow, nearly even, the outer web scarcely widening to the end. Wings long, much longer than the tail; the first quill longest." (*Hist. N. Am. B.*)

This genus differs from *Agelaius* in much longer and more curved claws, and in having first or second quill longest, instead of the longest being the second, third, or fourth.

There is even a greater discrepancy in size between the sexes, the female being scarcely more than half the bulk of the male. The latter is black, with the head, neck, and jugulum yellow.

***Xanthocephalus xanthocephalus* (Bonap.)**

YELLOW-HEADED BLACKBIRD.

Icterus xanthocephalus BP. Jour. Phil. Ac. v, 1826, 222.—AUD. Biog. v, 1839, 6, pl. 388.

Agelaius xanthocephalus SW. & RICH, F. B.-A. ii, 1831, 281.—AUD. Synop. 1839, 240; B. Am. iv, 1842, 24, pl. 213.

Agelaius longipes SW. Philo. Mag. i, 1827, 436.

Icterus perspicillatus WAGL. Isis, 1829, 758.

Icterus icterocephalus BP. Am. Orn. i, 1835, 27, pl. 3.—NUTT. Man. i, 1832, 176; 2d ed. 1840, 187.

Xanthocephalus icterocephalus BAIRD, B. N. Am. 1858, 531; Cat. N. Am. B. 1859, No. 404.—COUES, Key 1872, 156; Check List, 1874, No. 213; 2d ed. 1882, No. 319; B. N. W. 1874, 188.—B. B. & R. Hist. N. Am. B. ii, 1874, 167, pl. 32, fig. 9. pl. 33, fig. 9.—RIDGW. Nom. N. Am. B. 1881, No. 260.

HAB. Western North America, regularly to Wisconsin, Illinois, Kansas, etc., (casually) to Massachusetts, Pennsylvania, Florida and Cuba, north to the Saskatchewan, and south into Mexico. Accidental in Greenland.

SP. CHAR. *Adult male in summer.* Head, neck, and jugulum yellow, varying from a lemon to a rich orange shade—very rarely to a pinkish saffron hue; primary coverts and lower greater wing-coverts white; rest of plumage uniform dull black, the lower portion of the tibiae and the feathers immediately surrounding the anus yellow; lores, eyelids and feathers bordering the base of the bill, also black. *Adult male in winter.* Similar, but top of the head and nape washed with dusky. Total length about 10½–11½ inches; extent 17–18½; wing 5.65–5.80; tail 4.50–4.85; culmen .90; tarsus 1.30; middle toe 1.05. *Adult female.* Brownish dusky, the throat and jugulum dull yellow, the middle of the breast mixed with whitish. Total length about 9 inches; extent 14½; wing 4.40–4.65; tail 4.50–4.70. *Young male in first winter.* Similar to the adult female, but larger and deeper colored. *Young, first plumage.* General color light isabella-brown, or dull brownish buff, the wings and tail dusky.

The Yellow-headed Blackbird appears to be confined to the prairie districts of the northern portion of the State; at least there seems to be no record of its occurrence elsewhere. The writer thought he once heard its note at Mt. Carmel, but was unable to discover the bird, and may have been mistaken; and he was never able to find it on the prairies of Richland county, in marshy situation where the Red-wings were abundant. In Cook county, Mr. Nelson says (page 111 of his list) that it is a "very common resident in large marshes. Arrives the first of May. Commences nesting the last of this month. Owing to the restricted localities inhabited by this bird, it is very slightly known among farmers; even those living next the marshes, generally think it an uncommon bird. My observations regarding the actions of the males during incubation do not agree with those of Dr. Coues ("Birds of the Northwest," p. 190). The only difference between the habits of the male and female is the slightly

additional shyness of the former. Their nests vary endlessly in size, from four to twelve inches in depth, although the latter size is rather uncommon."

Mr. Coale informs me that colonies nest in rushes in the Calumet marshes, that they are bold and interesting, and that he has seen adults on the ground along country roads, some distance from water.

GENUS *AGELAIUS* VIEILLOT.

Agelaius VIEILLOT, Analyse, 1816, 33. Type, *Oriolus phæniceus* LINN.

"GEN. CHAR. First quill shorter than second; claws short; the outer lateral scarcely reaching the base of the middle. Culmen depressed at base, parting the frontal feathers; length equal to that of the head, shorter than tarsus. Both mandibles of equal thickness and acute at tip, the edges much curved, the culmen, gonys, and commissure nearly straight or slightly sinuated; the length of bill about twice its height. Tail moderate, rounded, or very slightly graduated. Wings pointed, reaching to end of lower tail-coverts. Colors black with red shoulders in North American species. One West Indian with orange-buff. Females streaked except in two West Indian species.

"The nostrils are small, oblong, overhung by a membranous scale. The bill is higher than broad at the base. There is no division between the anterior tarsal scutellæ and the single plate on the outside of the tarsus." (*Hist. N. Am. B.*)

This genus is represented in eastern North America by a single species, the common Red-winged Blackbird (*A. phæniceus*).

Agelaius phæniceus (Linn.)

RED-WINGED BLACKBIRD.

Popular synonyms. Red-winged Starling or Blackbird; Red-and-buff-shouldered Blackbird; Red-shouldered Blackbird; Swamp Blackbird.

Oriolus phæniceus LINN. S. N. ed. 12, i, 1766, 161.

Agelaius phæniceus VIEILL. Analyse, 1816.—AUD. Synop. 1839, 141; B. Am. iv, 1842, 31, 216.

—BAIRD, B. N. Am. 1858, 526; Cat. N. Am. B. 1859, No. 401.—COUES, Key, 1872, 156; Check List, 1874, No. 212; 2d ed. 1882, No. 316; B. N. W. 1874, 186, (part).—B. B. & R. Hist. N. Am. B. ii, 1874, 159 pl. 33, figs. 1, 2, 3.—RIDGW. Nom. N. Am. B. 1881, No. 261.

Icterus phæniceus "DAUD." LICHT. 1823.—NUTT. Man. i, 1832, 169.—AUD. Orn. Biog. i, 1831, 348; v, 1839, 487, pl. 67.

Sturnus predatorius WILS. Am. Orn. iv, 1811, 30, pl. 30, fig. 1.

HAB. Temperate North America, more rare on Pacific coast, where represented by an allied species *A. gubernator* WAGL.; north to the "Fur Countries," south, in winter to Costa Rica, but wintering, more or less regularly, north to 35° or further. Bahamas, but not in Cuba, where represented by *A. assimilis*. Accidental in England.

SP. CHAR. *Adult male.* Uniform deep black, the lesser wing-coverts brilliant scarlet, the middle wing-coverts buff or ochraceous. Bill and feet deep black, iris brown. Total length (fresh), about 9.00–9.50 inches; extent, 14.50–15.75. *Adult female.* Above dusky grayish brown, the feathers narrowly edged with light grayish, rusty, etc.; beneath

white, broadly streaked with dusky, the chin, and throat, sometimes sides of head also, usually more or less tinged with buff or pink. Lesser wing-coverts sometimes dark brown red. Total length (fresh), 7.45-8.25; extent, 12.15-13.00. "*First plumage*, female. Above dark seal-brown; every feather of the crown, nape and interscapular region, with the greater and middle wing-coverts, primaries, secondaries, and tertiaries, edged and tipped with brownish fulvous. Beneath light yellowish-brown, thickly and broadly streaked everywhere with dull black. Sides of throat and head, including a considerable space around the eye, bare skin (of a brownish orange color in the dried specimen), with a few scattering pin-feathers. (From a specimen in my collection obtained at Cambridge, Mass., June 24, 1872.) Males in first plumage, before me, differ but little from the individual above described. All have the bare spaces on the sides of the throat, although these are feathered before the first moult is begun. A male in transitional dress (collected at Ipswich, Mass., July 15, 1874), with the head fully feathered, has the throat dull brownish yellow, with a strong tinge of the same color on the breast. The wing and tail-feathers are renewed during the first moult.

"*Autumnal plumage*: young male. Crown dark brown, with a faint rusty edging upon each feather; nape brownish yellow, with a rusty tinge, finely spotted with a dark brown; interscapular region, and a broad outer edging upon the secondaries and tertiaries, deep dull reddish-brown, each feather having a broad V-shaped mark of dull black. Rump glossy black, every feather edged with fulvous ashy; shoulder dull red with black spotting; middle-coverts fulvous; greater coverts tipped with the same color. Superciliary stripe brownish yellow. A space anterior to and beneath the eye dusky black. Entire under parts black, each feather upon the abdomen edged broadly with pale ashy, elsewhere with yellowish brown. The light edging of the feathers gives the under parts a conspicuously scutellate appearance. (From a specimen in my collection taken at Cambridge, Mass., October 6, 1876.) This plumage (although not to my knowledge previously described by writers) is the characteristic one of the young in autumn. I am unable to state if the adult male retains his uniform black coloring at all seasons. A remarkable variation from the typical plumage is afforded by a fine adult male in my cabinet, which has a broad crescentic patch of pale yellow tinged with rose-color upon the breast. Nor is this specimen unique, for I have seen several others with a similar but less conspicuous mark. It probably represents an exceptionally high condition or phase of ornamentation, like the commoner one of scarlet or yellow wing-markings; in the Scarlet Tanager (*Pyranga rubra*). Very old females of *A. phæniceus* have the throat a delicate peach-color; illustrated by several specimens in my cabinet from Nantucket and Ipswich, Mass." (BREWSTER, *Bull. Nutt. Orn. Club*, Oct., 1878, p. 175.)

The common Red-winged Blackbird is one of our most abundant and best known birds. Every marsh and open swamp is inhabited by numbers in the spring and summer, while in autumn they collect in large flocks, sometimes of such extent as to cause serious damage to the farmer's grain stacks. In the extreme southern portion of the State they sometimes winter, congregating in large flocks, from which they daily sally forth to forage over the surrounding country. Even during the spring and summer the Redwings are gregarious, for they breed in communities, hundreds of pairs sometimes nesting in one marsh. The males are polygamous, each having under his protection from two to three or four demure looking females, hardly half his size, and dressed in homely garb, who attend quietly and assiduously to their domestic duties, while their lord and master

mounts guard upon some prominent perch near by, and cheers them with his song. This song, while in a measure harsh, has yet a peculiar metallic resonance which renders it not unpleasant; and when the songs of many individuals are blended the resulting chorus is decidedly musical. The normal, or usual, song sounds like *con-cur-ee'*, but there are many variations from this modulation. When singing, the male bends forward his body, swells his plumage, and by some peculiar adjustment of the wings brings his scarlet epaulettes into striking prominence; and when he sallies from his perch to make the regular round of inspection over his harem these splendid decorations flash forth with rich brilliancy, no doubt to the admiration of the faithful creatures for whom the display is intended.

The nest of the Red-winged Blackbird is very variously situated, but it is always in or in very close proximity to a swamp or marsh. It is placed either among rank grasses or sedges, rushes, or other marsh plants, or in bushes growing in the water; and on one occasion the writer found a colony which had built their nests in "sage bushes" (*Artemisia tridentata*) growing in and about a shallow alkaline pond, on Antelope Island, in the Great Salt Lake. The most noteworthy departure from the usual situation, however, known to the author, was that of a nest built in a small elm tree standing in the middle of a moderately dry meadow, and placed at a height of about fifteen feet from the ground.

GENUS **STURNELLA** VIEILLOT.

Sturnella VIEILLOT, Analyse, 1816, 31. Type, *Alauda magna* LINN.

"GEN. CHAR. Body thick, stout; legs large, toes reaching beyond the tail. Tail short, even, with narrow acuminate feathers. Bill slender, elongated; length about three times the height; commissure straight from the basal angle. Culmen flattened basally, extending backwards and parting the frontal feathers; longer than the head, but shorter than tarsus. Nostrils linear, covered by an incumbent membranous scale. Inner lateral toe longer than the outer, but not reaching to basal joint of middle, which is equal to the tarsus. Hind claw nearly twice as long as the middle. Feathers of head stiffened and bristly; the shafts of those above extended into a black seta. Tertials nearly equal to the primaries. Feathers above all transversely banded. Beneath yellow, with a black pectoral crescent." (*Hist. N. Am. B.*)

Two quite distinct though very similar species of *Sturnella* are found in Illinois, one of them belonging exclusively to the eastern and the other to the western portions of the United States, but occurring together in the prairie districts of the Mississippi Valley, especially west of the Mississippi River.

These may be distinguished by the following characters:

1. *S. magna*. Yellow of throat confined strictly between the maxillæ. Lateral stripes of the crown with black predominating; upper parts with much black, and with the dark bars of the tertials and middle tail-feathers usually connected along the middle line of the feathers. *Hab.* Eastern United States to the border of the Great Plains.

2. *S. neglecta*. Yellow of the throat extending over the maxillæ nearly or quite to the angle of the mouth. Lateral crown stripes streaked with black and grayish in nearly equal amount; upper parts with less black, the dark bars of the tertials and middle tail-feathers not connected. *Hab.* Western United States and western Mexico, east to the prairie districts of the Mississippi Valley.

It is sometimes rather difficult to distinguish specimens of these two species; but the most casual observer of birds may readily distinguish them in life by their totally different notes—probably no two species of any genus of birds being more distinct in this respect.

Sturnella magna (Linn.)

MEADOWLARK.

Popular synonyms. Fieldlark; Old Field Lark.

Alauda magna LINN. S. N. ed. 10, i, 1758, 167.—WILS. Am. Orn. iii, 1811, 20, pl. 19.

Sturnella magna BAIRD, B. N. Am. 1858, 535; Cat. N. Am. B. 1859, No. 406.—COUES, Key, 1872, 157; 2d ed. 1884, 406; Check List, 1874, No. 214; 2d ed. 1882, No. 320; B. N. W. 1874, 190 (part).—B. B. & R. Hist. N. Am. B. ii, 1874, 174, pl. 34, fig. 2.—RIDGW. Nom. N. Am. B. 1881, No. 263.

Sturnus ludovicianus LINN. S. N. ed. 12, i, 1766, 290.—NUTT. Man. i, 1832, 147.—AUD. Orn. Biog. ii, 1834, 216; v, 1839, 492, pl. 136.

Sturnella ludoviciana SW. 1831.—AUD. Synop. 1839, 148; B. Am. iv, 1842, 70, pl. 223.

HAB. Eastern United States and British Provinces (north to about 53° in the interior), west to the edge of the Great Plains; winters chiefly south of 38°. Accidental in England.

"SP. CHAR. The feathers above dark brown, margined with brownish white, and with a terminal blotch of pale reddish brown. Exposed portions of wings and tail with dark brown bars, which on the middle tail-feathers are confluent along the shaft. Beneath yellow, with a black pectoral crescent, the yellow not extending on the side of the maxilla; sides, crissum, and tibiae pale reddish brown, streaked with blackish. A light median and superciliary stripe, the latter yellow anterior to the eye; a black line behind. *Female* smaller and duller. *Young* with pectoral crescent replaced by streaks; the yellow of under surface replaced more or less by ochraceous or pale fulvous. Length, 10.60; wing, 5.00; tail, 3.70; bill above, 1.35." (*Hist. N. Am. B.*)

Adult male. Wing, 4.50-5.00; tail, 3.50-3.85; culmen, 1.20-1.50; bill from nostril, .75-.95; tarsus, 1.35-1.60; middle toe, 1.10-1.30.

Adult female. Wing about 4.20, tail 3.00.

Four adult males from Mount Carmel measured, when fresh, as follows: Total length, 9.75-10.50; extent, 15.00-15.75.

In a work whose acknowledged aim is to give information to the interested reader, it seems almost presumptuous on the part of the author to offer any remarks on the habits of so well-known a bird

as the common Meadowlark; for perhaps the majority of those who may read this book are as familiar with this bird as the author, and doubtless many are even more intimately acquainted with him. Suffice it to say, therefore, that while not one single charge has been laid at his door, so far as the author is aware, the Meadowlark is a very general favorite among lovers of birds, on account of his pleasing song, bright plumage, and pretty ways. His sweet, tender song is one of the finest to be heard in our rural districts, and is characterized by a delicacy of tone remarkable in a large bird. It is usually interpreted by the country folks as intimating that "*laziness will kill you*" (accent on the penultimate syllable), while others imagine it to say: *peck—you can't see me*,—a very appropriate translation, we think, in the case of a bird which, like the present, plays at "hide and seek" with us in the meadows. *Apropos* of the song of this bird, it has been said that on the prairies of Illinois a decided change from the song of the bird of the Atlantic States may be noticed, the variation being in the direction of the more powerful, melodious, and varied song of *S. neglecta*. But the writer has been unable to detect the slightest difference, and his experience is similar to that of others who have had the opportunity to compare the songs of meadowlarks in the two regions. *S. neglecta* itself occurs more or less plentifully on the prairies of the northern, central, and western portions of the State; and as this bird varies greatly in the character of its song with different individuals (though it is always very distinct from that of *S. magna*), it is probable that the author to whose statement we have referred heard in reality inferior songsters (probably younger birds) of the western species, and not *S. magna*.

***Sturnella neglecta* (Aud.)**

WESTERN MEADOWLARK.

Popular synonym. Western Fieldlark.

Sturnella neglecta AUD. B. Am. vii, 1843, 339, pl. 487.—BAIRD, B. N. Am. 1858, 537; Cat. N.

Am. B. 1859, No. 407.—RIDGW. Nom. N. Am. B. 1881, No. 264.

Sturnella magna var. *neglecta* COUES, Key, 1872, 187; Check List, 1874, No. 214a.—

B. B. & R. Hist. N. Am. B. ii, 1874, 176, pl. 34, fig. 1.

Sturnella magna, b. *neglecta* COUES, B. N. W. 1874, 190.

Sturnella magna neglecta COUES, 2d Check List, 1882, No. 322.

HAB. Western United States, east to the prairie districts of the Mississippi Valley, as far as central and northern Illinois, Wisconsin, Iowa, etc.; south to western Texas and western Mexico, as far as Colima. /

"SP. CHAR. Feathers above dark brown, margined with brownish white, with a terminal blotch of pale, reddish brown. Exposed portions of wings and tail with transverse bands, which, in the latter, are completely isolated from each other, narrow and linear. Beneath yellow, with a black pectoral crescent. The yellow of the throat extending on the sides of the maxilla. Sides, crissum, and tibiæ very pale reddish brown; or nearly white, streaked with blackish. Head with a light median and superciliary stripe, the latter yellow in front of the eye; a blackish line behind it. The transverse bars on the feathers above (less so on the tail) with a tendency to become confluent near the exterior margin. Length, 10 inches; wing, 5.25; tail, 3.25; bill, 1.25." (*Hist. N. Am. B.*)

Adult male. Wing, 4.40-5.10; tail, 3.30-3.50; culmen, 1.18-1.40; bill, from nostril, .85-.90; tarsus, 1.30-1.45; middle toe, 1.10-1.15.

Adult female. Wing, 4.35-4.45; tail, 3.05-3.10; bill, from nostril, .80-.85; tarsus, 1.25-1.35; middle toe, 1.05-1.10.

Adult males shot by the writer in Nevada, measured, when fresh, as follows: Total length, 9.75-10.25; extent, 16.00-17.00; maxilla and tip of mandible, black; basal two thirds of the mandible, and posterior three fourths of the maxillary tomium, pure pale blue; iris, brown; legs and feet uniform, delicate, pale, ashy lilaceous.

According to Mr. E. W. Nelson (*Bull. Essex Inst.* Vol. VIII., 1876, p. iii), the Western Meadowlark is "a regular but rather rare summer resident upon prairies" in the northeastern portion of the State, and he conjectures that it "is probably a common summer resident upon the prairies in the western portion." He records "a fine specimen" in the collection of Mr. A. W. Brayton, "taken near Chicago the last of May, 1876," and among Mr. H. K. Coale's notes I find an entry reading "Englewood, May, 1876," which, however, may possibly refer to the same specimen. On the prairies of Richland county I have, on a few occasions, heard its unmistakable song, but have never been able to obtain a specimen.

GENUS *ICTERUS* BRISSON.

Icterus BRISS. ORN. II, 1760, 85. Type (by elimination), *Oriolus icterus* LINN.

Pendulinus VIEILL. Analyse, 1816, 13. Type, *Oriolus spurius* LINN.

Yphantès VIEILL. Analyse, 1816, 33. Type, *Oriolus baltimore* LINN. (*Coracias galbula* LINN.)

"GEN. CHAR. Bill slender, elongated, as long as the head, generally a little decurved, and very acute. Tarsi not longer than the middle toe, nor than the head; claws short, much curved; outer lateral toe a little longer than the inner, reaching a little beyond base of middle toe. Feet adapted for perching. Tail rounded or graduated. Prevailing colors yellow or orange, and black." (*Hist. N. Am. B.*)

The two species occurring within the field of this work belong to two rather distinct subgenera, which may be defined as follows:

1. *Yphantès*. Bill rather stout, conical, the outlines very straight; tail slightly rounded, much shorter than the wing.
2. *Pendulinus*. Bill slender, decurved at the tip; tail graduated, about as long as the wing.

The species (including a western one, which may reasonably be expected to occur as a straggler) are characterized as follows:

- A.** Tail much shorter than the wing, nearly even; bill with straight outlines. *Males* orange and black, the *females* much duller. (Subgenus *Tphantes*.)
1. ***I. galbula*.** *Adult male.* Head and neck all round, back, wings, and part of tail, deep black, the wing-feathers edged with white; rest of plumage usually rich cadmium-orange, but varying from yellowish orange to intense reddish orange. *Adult female.* Above olive, usually more or less mixed with blackish; beneath dull orange, the throat usually mixed with black (whole head and neck sometimes broken blackish); tail yellowish olive. *Young* like the adult female, but without black on throat.
 2. ***I. bullocki*.** *Adult male.* Crown, nape, back, wings, and part of tail, deep black; a narrow stripe through the eye and a broad one on the throat, also black; a large white patch covering greater wing-coverts; rump dull orange; superciliary stripe, with lower parts orange, varying from Indian-yellow to a rich reddish cadmium hue. *Adult female* and *young male in second year.* Above brownish gray the back usually spotted with blackish; beneath brownish white, yellowish anteriorly—sometimes wholly yellowish—the throat often with more or less of an indication of a dusky stripe; tail yellowish olive.
- B.** Tail about equal to the wings, graduated; bill slender, decurved at the tip. *Adult male;* chestnut and black. (Subgenus *Pendulinus*.)
3. ***I. spurius*.** *Adult male.* Head, neck, jugulum, back, wings and tail, deep black; rump, lesser and middle wing-coverts, and lower parts, rich chestnut. *Adult female.* Above olive-green, beneath greenish yellow. *Young male in second year.* Similar to adult female, but throat black. *Young, first plumage.* Much like the adult female.

Icterus galbula (Linn.)

BALTIMORE ORIOLE.

Popular synonyms. Hanging Bird; Hang-nest; Golden Oriole; Golden Robin; English Robin; Fire Bird; Pea Bird.

Coracias galbula LINN. S. N. ed. 10, i, 1758, 107.

Icterus galbula COUES, Bull. Nutt. Orn. Club, v, 1880, 98; 2d Check List, 1882, No. 326; 2d Key, 1894, 408.—RIDGW. Nom. N. Am. B. 1881, No. 271.

Oriolus baltimore LINN. S. N. ed. 12, i, 1866, 162.—WILS. Am. Orn. i, 1808, 23, pl. 1, fig. 3; vi, 88, pl. 53, fig. 4.

Icterus baltimore DAUD. 1800.—NUTT. Man. i, 1832, 152.—AUD. Orn. Biog. i, 1831, 66; v, 1839, 278, pls. 12, 423; Synop. 1839, 143; B. Am. iv, 1842, 37, pl. 217.—BAIRD, B. N. Am. 1858, 548; Cat. N. Am. B. 1859, No. 415.—COUES, Key, 1872, 158; Check List, 1874, No. 216; B. N. W. 1874, 193.—B. B. & R. Hist. N. Am. B. ii, 1874, 195, pl. 35, fig. 5.

HAB. Temperate eastern North America, west to the eastern base of the Rocky Mountains, breeding chiefly north of 35°. In winter, eastern Mexico and Central America to Colombia; Cuba.

SP. CHAR. *Adult male.* Head and neck all round, jugulum (especially the median portion), back, wings, two middle tail-feathers, and middle portion of other rectrices, deep black. Lesser wing-coverts; rump, lower parts, and greater portion of tail, rich pure cadmium-orange. Feathers of wings edged with white. Bill fine light blue, the upper half of the maxilla black; iris brown; legs and feet plumbeous blue. *Adult female.* Above olive, mixed with dull greenish orange, the crown more or less mixed with black, and the back inclining to gray. Wings dusky, with two white bands. Tail golden olive. Lower parts dull orange, the abdomen inclining to whitish. Throat usually mixed with black. *Young.* Similar to the adult female, but without any black about head. Wing, 3.55-3.80; tail, 3.10-3.35; bill, from nostril, .48-.50.

The plumage of the female varies much more than that of the male. Occasionally there is almost as much black (excepting on the tail) as in the male, but it is much duller and more or less broken.

A young bird is soft, dull orange beneath, palest on the throat, and tinged along the sides with olive; above olive, with an orange cast on the rump and tail, the latter being without any black; centres of dorsal feathers blackish; wings blackish, with two broad white bands across coverts, and broad edges of white to the tertials.

Excepting only the Scarlet Tanager, the Baltimore Oriole is the most brilliant of our birds; and it is also one of the most attractive on account of the melody of its voice and the familiarity of its habits. It is a more or less common summer resident throughout the State, arriving, in the southern portion, during the third week in April and remaining till the latter part of September.

"The Baltimore Oriole," writes Dr. Brewer,* "is one of the most common birds nearly throughout New England. Gay and brilliant in plumage, interesting and lively in manners and habits, and a vocalist of rare power, with pathos, beauty, and variety in his notes, the bird has been, and would still be, a great favorite, but for its transgressions among the pea-vines of our gardens. He makes his appearance with exemplary punctuality, seeming regardless of the prematurity or tardiness of the season. Rarely does the 10th of May pass without the sound of his welcome notes, and rarely, if ever does he come sooner.

"Their period of song is not a long one, but soon terminates, as family cares increase and the tender broods require an undivided attention. Early in July this Oriole ceases to favor the world with those remarkable notes that seldom fail to attract attention by their peculiarity, and to excite admiration by their rich and full-toned melody."

***Icterus spurius* (Linn.)**

ORCHARD ORIOLE.

Popular synonyms. Brown Oriole; Chestnut-colored Oriole.

Orioles spurius LINN. S. N. ed. 12, i, 1766, 162.

Icterus spurius BP. 1827.—NUTT. Man. i, 1832, 165.—AUD. Orn. Biog. i, 1831, 221; v, 1839, 485, pl. 42; Synop. 1839, 144; B. Am. iv, 1842, 46, pl. 219.—BAIRD, B. N. Am. 1858, 547; Cat. N. Am. B. 1859, No. 414.—COUES, Key, 1872, 158; 2d ed. 1884, 407; Check List, 1873, No. 213; 2d ed. 1882, No. 324; B. N. W. 1874, 192.—B. B. & R. Hist. N. Am. B. ii, 1874, 190, pl. 34, figs. 4, 5, 6.—RIDGW. Nom. N. Am. B. 1881, No. 270.

* *Hist. N. Am. B.*, vol. ii, p. 197.

Oriolus mutatus WILS. Am. Orn. i, 1808, pl. 4, figs. 1-4.

Xanthornus affinis LAWR. ANN. LYN. N. Y. v, 1851, 113.

Icterus spurius var. *affinis* COUES, Key, 1872, 158.

Icterus spurius b *affinis* COUES, B. N. W. 1874, 193.

HAB. Eastern United States, west to the edge of the Great Plains (occasionally to the Rocky Mountains), north, rarely, to Canada, breeding as far south as the Rio Grande. In winter, south through eastern Mexico and Central America (both sides) to Colombia; Cuba.

"SP. CHAR. Bill slender, attenuated, considerably decurved; tail moderately graduated. *Male*, three years. Head and neck all round, wings, and interseapular region of back, with tail-feathers, black. Rest of under parts, lower part of back to tail, and lesser upper wing-coverts, with the lower ones, brownish chestnut. A narrow line across the wing, and the extreme outer edges of quills, white. *Female*. Uniform greenish yellow beneath, olivaceous above, and browner in the middle of the back; two white bands on the wings. Young male of two years like the female, but with a broad black patch from the bill to the upper part of the breast, this color extending along the base of the bill so as to involve the eye and all anterior to it to the base of the bill, somewhat as in *I. cuculatus*. Length of Pennsylvania male specimen, 7.25; wing, 3.25." (*Hist. N. Am. B.*)

In the southern half, at least, of Illinois the Orchard Oriole is far more numerous than the Baltimore; and though much less splendid in coloring is still a handsome bird, besides being an excellent songster, his notes having an ecstatic character quite the reverse of the mournful lament of his larger and more brilliantly colored cousin. The more prominent characteristics of the species are thus described by Dr. Brewer:

"The Orchard Oriole is an active, sprightly, and very lively species, and possesses a very peculiar and somewhat remarkable song. Its notes are very rapidly enunciated, and are both hurried and energetic. Some writers speak of the song as confused, but this attribute is not in the utterance of the song, the musician manifesting anything but confusion in the rapid and distinct enunciation of his gushing notes. These may be too quick in their utterance for the listener to follow, but they are wonderful both for their rapidity and their harmony. His performance consists of shrill and lively notes, uttered with an apparent air of great agitation, and they are quite as distinct and agreeable, though neither so full nor so rich, as are those of the more celebrated Golden Robin.

"In the Central States, from New York to North Carolina, these birds are not only very abundant, but very generally diffused. Hardly an orchard or a garden of any size can be found without them. They seem to prefer apple trees for their abode, and for the construction of their nests. These structures, though essentially different, are, in their style of architecture, quite as curiously wrought and ingenious as those of the Baltimore. They are sus-

pended from small twigs, often at the very extremity of the branches. In Pennsylvania they are usually formed externally of a peculiar kind of long, tough, and flexible grass. This material is woven through and through in a very wonderful manner, and with as much neatness and intricacy as if actually sewed with a needle. They are hemispherical in shape, open at the top, and generally about four inches in breadth, and three deep. The cavity has a depth and a width of about two inches."

GENUS *SCOLECOPHAGUS* SWAINSON.

Scolecophagus SWAINSON, F. Bor.-Am. ii, 1831, 494. Type, *Oriolus ferrugineus* GMELIN.

"GEN. CHAR. Bill shorter than the head, rather slender, the edges inflexed as in *Quiscalus*, which it otherwise greatly resembles; the commissure sinuated. Culmen rounded, but not flattened. Tarsi longer than the middle toe. Tail even, or slightly rounded.

"The above characteristics will readily distinguish this genus from its allies. The form is much like that of *Agelaius*. The bill, however, is more attenuated, the culmen curved and slightly sinuated. The bend at the base of the commissure is shorter. The culmen is angular at the base posterior to the nostrils, instead of being much flattened, and does not extend so far behind. The two North American species may be distinguished as follows:

"*S. ferrugineus*. Bill slender; height at base not .4 the total length. Color of male black, with faint purple reflection over whole body; wings, tail, and abdomen glossed slightly with green. Autumnal specimens with feathers broadly edged with castaneous rusty. Female brownish dusky-slate, without gloss; no trace of light superciliary stripe.

"*S. cyanocephalus*. Bill stout; height at base nearly .5 the total length. Color black, with green reflection over whole body. Head only glossed with purple. Autumnal specimens, feathers edged very indistinctly with umber-brown. Female dusky brown, with a soft gloss; a decided light superciliary stripe." (*Hist. N. Am. B.*)

Scolecophagus carolinus (Müll.)

RUSTY BLACKBIRD.

Popular synonym. Rusty Grackle.

Turdus carolinus MÜLL. Syst. Nat. Suppl. 1776, 146.

Scolecophagus carolinus RIDGW. Proc. U. S. Nat. Mus. 1885, 356.

Oriolus ferrugineus GMEL. S. N. i, 1788, 393.

Gracula ferruginea WILS. Am. Orn. iii, 1811, 41, pl. 21, fig. 3.

Quiscalus ferrugineus BP. 1824.—NUTT. Man. i, 1832, 199.—AUD. Orn. Biog. ii, 1834, 325; v, 1839, 483, pl. 147; Synop. 1839, 146; B. Am. iv, 65, pl. 222.

Scolecophagus ferrugineus SW. & RICH. F. B.-A. ii, 1831, 286.—BAIRD, B. N. Am. 1858, 551; Cat. N. Am. B. 1859, No. 417.—COUES, Key, 1872, 159; 2d ed. 1884, 411; Check List, 1874, No. 221; 2d ed. 1882, No. 331; B. N. W. 1874, 198.—B. B. & R. Hist. N. Am. B. ii, 1874, 203, pl. 35, fig. 4.—RIDGW. Nom. N. Am. B. 1881, No. 273.

"HAB. Eastern and northern North America, breeding from Maine to Labrador and Alaska, and wintering in the eastern United States, chiefly south of 38°.

"SP. CHAR. Bill slender; shorter than the head; about equal to the hind toe; its height not quite two fifths the total length. Wing nearly an inch longer than the tail; second quill longest; first a little shorter than the fourth. Tail slightly graduated; the lateral feathers about a quarter of an inch shortest. General color black, with purple reflections; the wings, under tail-coverts, and hinder part of the belly, glossed with green. In autumn the feathers largely edged with ferruginous or brownish, so as to change the appearance entirely. Spring female dull, opaque plumbeous or ashy black; the wings and tail sometimes with a green lustre. Young like autumnal birds. Length of male, 9.50; wing, 4.75; tail, 4.00. Female smaller." (*Hist. N. Am. B.*)

It is only during the colder months that this blackbird makes its appearance in Illinois. Perhaps the greater number pass beyond the limits of our State in midwinter, but the writer has seen small flocks in December and January in the bottom lands near Mount Carmel. In early spring they become quite numerous in swampy forests, congregating mostly about the borders of ponds or the banks of streams. Their peculiar squeaking but not unmusical song, which may be heard just before their departure for the North, somewhat resembles that of the Bronzed Grackle (*Quiscalus aeneus*) but is much less harsh and uttered in a higher key. Occasionally, especially during cold weather, small flocks frequent the barn-yards, for the purpose of gathering the grain which has become scattered about during the feeding of the stock.

Scolecophagus cyanocephalus (Wagl.)

BREWER'S BLACKBIRD.

Popular synonyms. Violet-headed or Blue-headed Blackbird; Corral Bird.

Psarocolius cyanocephalus WAGL. *Isis*, 1829, 758.

Scolecophagus cyanocephalus CAB. 1851.—BAIRD, B. *N. Am.* 1858, 552; *Cat. N. Am. B.* 1859 No. 332.—COUES, Key, 1872, 160; 2d ed. 1884, 411; *Check List*, 1874, No. 222; 2d ed. 1882, No. 332; B. N. W. 199.—B. B. & R. *Hist. N. Am. B.* ii, 1874, 206, pl. 35, fig. 3.—RIDGW. *Nom. N. Am. B.* 1881, No. 274.

Quiscalus breweri AUD. *B. Am.* viii, 1843, 345, pl. 492.

HAB. Western United States, eastern Minnesota, eastern Kansas, and, occasionally, the States along the eastern side of the Mississippi, breeding abundantly as far to the northeast as the vicinity of Pembina, on the Red River of the North. Winters from 40°, or perhaps further north, south into Mexico.

"SP. CHAR. Bill stout, quiscaline, the commissure scarcely sinuated; shorter than the head and the hind toe; the height half the length of culmen. Wing nearly an inch longer than the tail; the second quill longest; the first about equal to the third. Tail rounded and moderately graduated; the lateral feathers about .35 of an inch shorter. General color of male black, with lustrous green reflections everywhere except on the head and neck, which are glossed with purplish violet. Female much duller, of a light brownish anteriorly; a very faint superciliary stripe. Length about 10 inches; wing, 5.30; tail, 4.40.

"Autumnal specimens do not exhibit the broad rusty edges of feathers seen in *S. ferrugineus*.

"The females and immature males differ from the adult males in much the same points as *S. ferrugineus* except that the "rusty" markings are less prominent and more grayish. The differences generally between the two species are very appreciable. Thus, in *S. cyanocephalus*, the bill, though of the same length, is much higher and broader at the base, as well as more linear in its upper outline; the point, too, is less decurved. The size is every way larger. The purplish gloss, which in *ferrugineus* is found on most of the body except the wings and tail, is here confined to the head and neck, the rest of the body being of a richly lustrous and strongly marked green, more distinct than that on the wings and tail of *ferrugineus*. In one specimen only, from Santa Rosalia, Mexico, is there a trace of purple on some of the wing and tail feathers." (*Hist. N. Am. B.*)

This species can scarcely be considered as more than a straggler to Illinois. At least the writer is unable to cite many records of its occurrence, while he has himself seen but a single specimen, a female shot at Mount Carmel in December, 1866, and now in the collection of the National Museum, at Washington.

GENUS *QUISCALUS* VIEILLOT.

Quiscalus VIEILLOT, Analyse, 1816, 36. Type *Gracula quiscal* LINN.

Megaquiscalus CASS. Proc. Phil. Ac. Sci. March, 1866, 409. Type *Quiscalus major* VIEILL.

Holoquiscalus CASS. t. c. p. 404. Type *Gracula barita* LINN.

"SP. CHAR. Bill as long as the head, the culmen slightly curved, the gonys almost straight; the edges of the bill inflected and rounded; the commissure quite strongly sinuated. Outlines of tarsal scutellæ well defined on the sides; tail long, boat-shaped, or capable of folding so that the two sides can almost be brought together upward, the feathers conspicuously and decidedly graduated, their inner webs longer than the outer. Color black.

"The excessive graduation of the long tail, with the perfectly black color, at once distinguishes this genus from any other in the United States. Two types may be distinguished: one, *Quiscalus*, in which the females are much like the males, although a little smaller and perhaps with rather less lustre; the other, *Megaquiscalus*, much larger, with tail more graduated, the females considerably smaller, and of a brown or rusty color. The *Quiscali* are all from North America or the West Indies (including Trinidad); the *Megaquiscali* are Mexican and Gulf species entirely; while a third group, the *Holoquiscali*, is West Indian." (*Hist. N. Am. B.*)

The genus *Quiscalus* in its most restricted sense, includes but two species, one of them with two geographical races, all of which are confined to eastern North America. Certain authors profess to be unable to distinguish the three forms which were first indicated by Professor Baird in 1858, and eleven years afterward clearly characterized by me in the "Proceedings" of the Philadelphia Academy for 1869, pp. 133-135. The fact nevertheless is evident to any one who will take the trouble to carefully examine large series of specimens (the larger the series the more positive do the differences become) that on the eastern side of the Alleghenies is found, almost exclusively, a form which may instantly be distinguished from that occurring, to the complete exclusion of the coast race, on the western side of the range in question. The coast race or species extends north to the southeastern corner of New York, and along the coast of southern New England, but becomes rare in eastern Massachusetts, beyond which point it has not been traced. To the south it extends in its typical form to northern Florida, but in the southern portion of the latter State it becomes, *by gradual transition*, smaller, with a larger bill, and somewhat different coloration. The Florida bird constitutes a local race, for which the name *Q. quiscula agleus* BAIRD is available, the more northern bird being the true *Q. quiscula* (LINN.) Throughout the country between the Alleghenies and Rocky Mountains, and northward to Hudson's Bay and Labrador, as well as throughout the greater part of New England and also the Middle States west of the mountains, *Q. quiscula* is wholly replaced by a bird of similar size and form but totally different coloration. This is the *Q. æneus*, mihi. I have usually ranked it as a race of *Q. quiscula*; but the circumstance that among very large series of both forms (amounting to several hundred specimens) I have never seen one which I could not immediately refer to one or the other, very strongly suggests their specific distinctness, as I had at first claimed for them. A fact equally significant of the correctness of this view is that typical specimens of *Q. æneus* have occasionally been taken, *as undoubted stragglers*, within the region inhabited by *Q. quiscula*, but at the same time no intermediate specimens appear ever to have been found. In accordance, therefore, with definite and consistent principles for my guidance in the application of the fact of intergradation as the test of conspecific relation between closely related forms, I am compelled to recognize *Q. æneus* as a distinct species until intergradation with *Q. quiscula* shall have been proven.

The following comparative diagnoses, which include also both forms of the eastern species, show, briefly, the differential character of *Q. æneus* and *Q. quiscula*. It should be especially noted that the color of the head and neck is of *no importance whatever* as a diagnostic character, but that the coloration of the back and lower parts is the decisive test.

1. *Q. æneus*. Entire body, above and below, uniform and unvarying brassy olive, or olivaceous bronze. Wings gradually shading into bronzy reddish purple, the primaries and tail more purplish violet. Head, neck, and jugulum rich metallic brassy green, steel-blue, violet, or purple, *always very abruptly and sharply defined against the totally different color of the back and breast.*
2. *Q. quiscula*. Plumage of the body varying from dark dull metallic slate-green to violet or purple, *never perfectly uniform, and usually broken by transverse bars of different metallic tints*—golden green, steel-blue, bronze, or purple, according to the individual. Tail and wings bluish or greenish.
 - a. *quiscula*. Head, neck and jugulum varying from brassy green to steel-blue, violet, or purplish bronze, the color (whatever it may be) rarely abruptly defined posteriorly. Body usually with purplish predominating. *Male*. Wing 5.50-5.90; tail 5.20-6.20; bill, from nostril, .88-1.00. *Hab.* Atlantic coast, from northern Florida to Massachusetts.
 - b. *aglaeus*. Head, neck, and jugulum usually purplish violet (more bluish anteriorly), and usually sharply defined posteriorly. Body usually dark metallic bronze-green. *Male*. Wing 5.10-5.50; tail 5.05-5.60; bill, from nostril, .90-1.05. *Hab.* Southern Florida.

Quiscalus quiscula æneus Ridgw.*

BRONZED GRACKLE.

Popular synonym. Western Crow Blackbird.

Quiscalus versicolor AUD. B. Am. iv, 1842, 58, pl. 221 (description and account of habits refers in part to *Q. quiscula*).—BAIRD, B. N. Am. 1858, 555 (part; western specimens).

Quiscalus æneus RIDGW. Proc. Phil. Ac. Sci. 1869, 134.

Quiscalus purpureus var. *æneus* B. B. & R. Hist. N. Am. B. ii, 1874, 218.

Quiscalus purpureus æneus RIDGW. Nom. N. Am. B. 1881, No. 2785.—COUES, 2d Check List, 1882, No. 337.

HAB. Interior of North America, from Mississippi Valley to the Rocky Mountains, and north to the Saskatchewan, Hudson's Bay Territory, and Labrador, thence south to Massachusetts, northern New York, etc.; merely casual or occasional east of the Alleghenies south of New York, being replaced along the Atlantic seaboard by *Q. quiscula*.

SUBSP. CHAR. Entire body, above and below, uniform and unvarying brassy olive, or olive-bronze. Wings gradually shading into bronze-purple, the primaries and tail more violet-purple. Head, neck, and jugulum metallic brassy green, steel-blue, violet or purple (according to the individual), always very abruptly defined against the very different color of the back and breast.

Adult male. Total length (fresh), 13.00; extent, 17.75; wing (skins), 5.55-5.75; tail, 5.50-6.20; bill, from nostril, .88-.90. Bill and feet deep black; iris yellowish white.

Adult female. Total length (fresh), 11.25-11.50; extent, 16.00-16.50; wing (in skins), 5.00-5.05; tail, 4.80-4.90; bill, from nostril, .70-.75. Plumage much duller than in the male, the metallic colors less brilliant.

Young. Uniform grayish dusky, without metallic tints. Iris pale brown.

* "A. O. U. Check List;" *Quiscalus æneus*, according to the author's views.

This fine but unpopular bird is very common throughout the State, and, like the Blue Jay, is in many places one of the most familiar of birds, nesting in the groves or shade trees within towns, evincing little fear of man. In the fall they congregate in large numbers, which keep together during the winter, and in the spring when these large companies break up they do not disband entirely, but separate into colonies of greater or less extent, the different pairs of which build their nests in as close proximity to one another as suitable places for their location will permit. In their choice of a location for the nest they are by no means particular, any place where it can be securely attached answering the purpose equally well; and it is by no means unusual to see in the same tree several nests, some saddled on horizontal branches, others built in a large fork, and others again in holes, either natural or those made by the Flicker. On a small island, near Mount Carmel, densely covered with a growth of young willows of twenty to thirty feet in height, but very slender, the writer once found a colony numbering upwards of seventy nests, all attached to the willow trees and supported against the trunks by small twigs. In the immediate vicinity, along the river bank, were many other nests, most of them built inside of holes in the large dead trees or in stumps.

The Crow Blackbird is quite as omnivorous as the Crow or Blue Jay, and whenever opportunity offers will not hesitate to attack and eat smaller birds, especially defenseless young. But his own offspring are sometimes destroyed by carnivorous enemies, the writer having once seen, in the locality mentioned above, a Fox Squirrel (*Sciurus ludovicianus* CUSTIS) emerge from a hole in a large dead tree with a young blackbird in its mouth. The squirrel was attacked by a number of the blackbirds, who were greatly excited, but it paid no attention to their demonstrations, and, after descending, scampered off into the woods with its prey.

The general habits of the Bronzed Grackle are in all respects identical with those of the Purple Grackle (*Q. quiscula*), unless it may be that it is more apt to build its nest in holes of trees than the latter species. We do not think, however, that they really differ in this respect, but believe that *Q. quiscula* will probably be found to avail itself of such nesting sites when they are to be found in the localities which they frequent. Certain it is that *Q. æneus* builds its nests in exactly such situations as are supposed to be usually chosen by *Q. quiscula* whenever no holes are

available for the purpose. From an almost equal familiarity with the two birds, we are able to say that their notes differ decidedly, especially those of the male during the breeding season, the "song" of the western bird being very much louder and more musical, or metallic, than that of its eastern relative.

FAMILY CORVIDÆ.—THE CROWS AND JAYS.

"CHAR. Primaries ten; the first short, generally about half as long as the second (or a little more); the outer four sinuated on the inner edge. The nasal fossæ and nostrils usually more or less concealed by narrow, stiffened bristles (or bristly feathers), with short appressed lateral branches extending to the very tip, all directed forwards (these bristles occasionally wanting). Tarsi scutellate anteriorly, the sides undivided (except sometimes below) and separated from the anterior plates by a narrow naked strip, sometimes filled up with small scales. Basal joint of middle toe united about equally to the lateral, generally for about half the length. Bill generally notched." (*Hist. N. Am. B.*)

The Corvidæ constitutes a very strongly marked family or group of the Oscines, the principal character being the separation of the lateral and anterior scutellæ of the tarsus by a narrow interval which is devoid of smaller scales, the conspicuous nasal tufts (these absent in a few genera) and the absence of an angle at the base of the commissure, which is invariably present in the *Icteridæ* and *Fringillidæ*. Some of the genera resemble gigantic Titmice—*Cyanocitta* corresponding to the genus *Lophophanes* and *Perisoreus* to *Parus*. The resemblance is, however, apparently a purely superficial one, there being many important differences. Thus, "the feathers at the base of the bill in the Jays, are bristly throughout, with lateral branches reaching to the very tip. In *Paridæ* these feathers are inclined to be broader, with the shaft projecting considerably beyond the basal portion, or the lateral branches are confined to the basal portion and extended forwards. There is no naked line of separation between the scutellæ on the outer side of tarsi. The basal joint of the middle toe is united almost or quite to the end to the lateral instead of half-way. The first primary is usually less than half the second, instead of rather more; the fourth and fifth primaries nearly equal and longest, instead of the fifth being longer than the fourth." (*Hist. N. Am. B.*)

Two so-called sub-families of typical *Corvidæ* are recognized, but they are not very well characterized, on account of the evidence of numerous intermediate forms. Taking the North American members of the family there is, however, no difficulty in recognizing the two sub-families, which may be defined as follows

Corvinæ. Bill as long as the head. Tail short, nearly even; wings long and pointed, longer than tail, and nearly reaching its tip; projecting beyond the under tail-coverts, which reach the middle of tail. Tip of wing formed by the third, fourth, and fifth quills, which are longest. Tarsi usually with a row of small scutellæ on each side.

Garrulinæ. Bill usually shorter than head. Tail lengthened, rounded, and generally longer than the wings, which are short, rounded and extend scarcely beyond the lower tail-coverts; these not reaching the middle of the tail. Tip of wing formed by the fourth, fifth, and sixth quills, which are longest. Tarsi usually with a row of small scutellæ on the inner side only.

SUBFAMILY CORVINÆ.—THE CROWS.

CHAR. Wings long and pointed, longer than the tail, and, when closed, reaching nearly to its tip, extending beyond the under tail-coverts, the third, fourth, and fifth quills forming the tip of the wing.

The following diagnoses may serve to distinguish the three genera of North American *Corvinæ*:

A. (*Corvæ*). Bill compressed, much higher than broad; its tip compressed. Size large (i. e. over 13 inches long), color black, or mainly black.

Color black throughout; bill much compressed, the culmen much arched, and the gonys convex; nasal bristles strong - - - **Corvus.**

B. (*Nucifragæ*). Bill cylindrical, scarcely or not at all higher than broad; its tip depressed. Size small (i. e. less than 15 inches long). Color uniform blue or with ashy on body, and black wings and tail.

Color ashy, with wings and tail mainly black. Culmen convex, gonys slightly concave. Nostrils covered by short nasal tuft - - **Picicorvus.**

Color uniform blue, bright on the head; the throat streaked with whitish. Culmen straight; gonys slightly convex. Nostrils completely exposed; no nasal tufts - - - **Gymnokitta.**

Only the first of the above genera has representatives in eastern North America, the other two being distinctly western.

GENUS CORVUS LINNÆUS.

Corvus LINNÆUS, Syst. Nat. ed. 10, i, 1758, 105. Type, *Corvus corax* LINN.

"**GEN. CHAR.** The nasal feathers lengthened, reaching to or beyond the middle of the bill. Nostrils large, circular, overhung behind by membrane, the edges rounded elsewhere. Rictus without bristles. Bill nearly as long as the tarsus, very stout; much higher than broad at the base, culmen much arched. Wings reaching nearly or quite to the tip of the tail, the outer four primaries sinuated internally. Tarsi longer than the middle toe, with a series of small scales on the middle of each side separating the anterior scutellate portion from the posterior continuous plates. Sides of the head occasionally with nearly naked patches. Tail graduated or rounded." (*Hist. N. Am. B.*)

The following species occur in eastern North America:

- A.** Feathers of the throat elongated, narrow, and with very distinct outlines. (*Ravens*.)
 1. **C. *corax sinuatus*.** Feathers of the neck and breast dull gray beneath the surface. Wing more than 16 inches, tail 9.50 or more.
 2. **C. *cryptoleucus*.** Feathers of the neck and breast pure white beneath the surface. Wing less than 15 inches; tail less than 9.

B. Feathers of the throat normal; i. e., short, broad, and blended. (*Crows*.)

3. **C. americanus.** Plumage glossed with purplish violet, but this hardly perceptible on head and neck. Wing 12 inches or more; tail 7 or more; culmen 1.80 or more; tarsus 2 or more.
4. **C. ossifragus.** Plumage glossed with violet-blue, more greenish on head, neck and lower parts, the gloss very perceptible throughout. Wings less than 11 inches; tail about 6.50; culmen 1.55; tarsus, 1.65.

Corvus corax sinatus (Wagl.)

AMERICAN RAVEN.

Corvus carnivorus "BARTS." BAIRD, B. N. Am. 1858, 560; ed. 1860, pl. 21; Cat. N. Am. B. 1859, No. 423.

Corvus corax var. *carnivorus* B. B. & R. Hist. N. Am. B. ii, 1874, 233, 234, pl. 37, fig. 6.

Corvus corax carnivorus RIDGW. Nom. N. Am. B. 1881, No. 280.

Corvus corax WILS. Am. Orn. ix, 1825, 136, pl. 75, fig. 3.—NUTT. Man. i, 1832, 202.—AUD.

Orn. Biog. ii, 1834, 476, pl. 101; Synop. 1839, 150; B. Am. iv, 1843, 78, pl. 224.—COUES, Key, 1872, 162; Check List, 1874, No. 226; 2d ed. 1882, No. 338; B. N. W. 1874, 204.

Corvus sinuatus WAGL. Isis, 1829, 748.

Corvus cacalote WAGL. Isis, 1831, 527.—BAIRD, B. N. Am. 1858, 563; Cat. N. Am. B. 1859, Nos. 423, 424.

SP. CHAR. *Adult.* Tail graduated; feathers of throat lanceolate, those of neck, jugulum, and fore part of back gray—at bases. Entire plumage glossy black, the upper parts, especially wings and tail, with rich purplish reflections. Bill and feet black; iris brown. Total length (fresh), 25 to 27 inches; extent, 49 to 51; wing (in skins), about 17; tail, 10.

The Raven is a very local and nowhere abundant bird in Illinois. The writer has seen it only in the bottoms of Big Creek and about the borders of Fox Prairie, in Richland County, where, up to 1871 at least, one or two pairs might be seen at almost any time, usually soaring in circles over the timber. It was never observed in the vicinity of Mount Carmel, nor have I ever been able to hear of its occurrence anywhere in that portion of the State except in the localities mentioned. According to Mr. Nelson it was "formerly a not uncommon resident" in the northeastern portion of the State, but "now [1876] occurs only in winter and is rare." Mr. Nelson further remarks: "Frequents the sand hills along the lake shore from the last of October until spring. The first of November, 1875, I saw several specimens near Waukegan, where they were repeatedly seen flying along the lake shore, and in winter they unite in small flocks and move from place to place."

Corvus americanus Aud.

COMMON CROW.

Popular synonyms. American Crow; Tom Crow (Nevada).

Corvus corone WILS. Am. Orn. iv, 1814, 79, pl. 25, fig. 3 (nec LINN.)—SW. & RICH. F. B.—A. ii, 1831, 291.—NUTT. Man. i, 1832, 200.

Corvus americanus AUD. Orn. Biog. ii, 1834, 517; v, 1839, 477, pl. 156; Synop. 1839, 156; B. Am. iv, 1842, 87, pl. 225.—NUTT. Man. 2d ed. i, 1840, 221.—BAIRD, B. N. Am. 1858, 566; Cat. N. Am. B. 1859, No. 426.—COUES, Key, 1872, 162; Check List, 1873, No. 228; B. N. W. 1874, 206.—B. B. & R. Hist. N. Am. B. ii, 1874, 233, 234, pl. 37, fig. 5.

Corvus frugivorus "BAETR." COUES, Pr. Phil. Acad. 1875, 346; 2d Check List, 1882, No. 340.—RIDGW. Nom. Am. B. 1881, No. 282.

HAB. Whole of temperate North America, except northwest coast; south to northern Mexico. Rare in the interior western districts.

SP. CHAR. Tail slightly rounded. Feathers of throat short, blended, those of neck, etc., dusky grayish at bases. *Adult.* Deep black, with violet gloss, the latter fainter on lower parts. Bill and feet deep black; iris brown. *Young.* Dull, lusterless black. Total length (fresh specimens), 18.50–19.50; extent, 37.00–38.50; wing (in skins), about 13.00–13.50; tail 8.00.

During the breeding season, when the plumage becomes worn or "weather-beaten," there is much less gloss to the plumage. "All specimens shot at this season do not exhibit this peculiarity, and some show it in a more marked degree than others. These specimens are characterized by the entire absence of the violet gloss on the wings and tail, those parts being of a lustreless, purplish brown color. Some specimens have the concealed bases of the feathers of a fine, violet-glossed black, and the residue of a rich bronze hue." (MEARNS, *Bull. Nutt. Orn. Club*, Vol. III, 1878, p. 71.)

So well known a bird as the Common Crow needs no special biography in a work like this. His general habits are as familiar to every one, as are his appearance and voice. There are nevertheless some traits of his character which are hardly appreciated to the extent that they should be, and it is exceedingly probable that he is a much more useful member of bird society than he is given credit for.

SUBFAMILY GARRULINÆ.—THE JAYS.

"CHAR. Wings short, rounded; not longer or much shorter than the tail, which is graduated, sometimes excessively so. Wings reaching not much beyond the lower tail-coverts. Bristly feathers at base of bill variable. Bill nearly as long as the head, or shorter. Tarsi longer than the bill or than the middle toe. Outer lateral claws rather shorter than the inner. (*Hist. N. Am. B.*)

The following genera belong to North America, there being two others (*Psilorhinus* and *Xanthoura*) which barely come within our borders across the lower Rio Grande.

A. Tail very long and much graduated; first primary very narrow, falcate.

Pica. Head without crest; wings and tail metallic green and bluish.

B. Tail about as long as the wings, rounded; first primary not falcate.

a. Head conspicuously crested.

Cyanocitta. Wings and tail blue, barred with black.

b. Head without crest.

Aphelocoma. Above blue, the back (in North American species) more or less gray-

ish, the wings and tail not barred; beneath light grayish or dull whitish (in some Mexican species wholly blue underneath).

Perisorens. Plumage exceedingly lax and "fluffy." Bill very small, scarcely half the length of the head. Color mainly dull grayish.

GENUS *PICA* BRISSON.

Pica BRISSON, Ornithologia, 1760, ii, 35. Type, *Corvus pica* LINN.

"GEN. CHAR. Tail very long, forming much more than the total length; the feathers much graduated; the lateral scarcely more than half the middle. First primary falcate, curved, and attenuated. Bill about as high as broad at the base, the culmen and gonys much curved, and about equal; the bristly feathers reaching nearly to the middle of the bill. Nostrils nearly circular. Tarsi very long; middle toe scarcely more than two thirds the length. A patch of naked skin beneath and behind the eye.

"The peculiar characteristic of this genus, in addition to the very long graduated tail, lies in the attenuated, falcate first primary. *Calocitta*, which has an equally long or longer tail, has the first primary as in the Jays generally (besides having the nostrils exposed)." (*Hist. N. Am. B.*)

The American Magpie (*P. pica hudsonica*) belongs to a circum-polar species (*P. pica*) which in the various parts of its range is differentiated into more or less strongly marked geographical races. Many ornithologists do not admit the subspecific distinctness of the American bird, and the differences from the European (typical) form are indeed slight in some specimens, though easily recognized in the majority.

A probably distinct species (*P. nuttalli*), confined to California, differs in having the bill and bare suborbital space bright yellow instead of black.

Pica pica hudsonica (Sab.)

BLACK-BILLED MAGPIE.

Popular synonym. American Magpie.

Corvus pica WILS. Am. Orn. iv, 1811, 75, pl. 35, fig. 2 (*nec* LINN.)—SW. & RICH. F. B.—A. ii, 1831, 292.—NUTT. Man. i, 1832, 219.—AUD. Orn. Biog. iv, 1838, 408, pl. 357.

Corvus hudsonicus SABINE, App. Franklin's Voy. 1823, 25, 671.

Pica hudsonica BP. 1838.—BAIRD, B. N. Am. 1853, 576; Cat. N. Am. B. 1859, No. 432.

Pica melanoleuca var. *hudsonica* COUES, Key, 1872, 164; Check List, 1873, No. 233; B. N. W. 1874, 211.

Pica caudata var. *hudsonica* ALLEN, Bull. Mus. Comp. Zool. iii, 1872, 178.—B. B. & R. Hist. N. Am. B. ii, 1871, 265, 266, pl. 38, fig. 1.

Pica rustica β *hudsonica* RIDGW. Field & Forest, June, 1877, 218.

Pica rustica hudsonica RIDGW. Nom. N. Am. B. 1881, No. 286.—COUES, 2d Check List, 1882, No. 347.

Pica melanoleuca AUD. Synop. 1839, 157; B. Am. iv, 1842, 99, pl. 227.

SP. CHAR. Bill and naked suborbital skin black. Head, neck, breast, interscapulars, lining of wing, tail-coverts, and tibiae, deep black, the pileum usually glossed with bronze-greenish. Lower parts (except as described), scapulars, and inner webs of primaries, pure white. Wings metallic greenish blue; tail rich metallic green, passing, near tips, through bronze and reddish violet into violet-blue. Total length (fresh specimens), 17.50-21.75; extent, 21.25-25.00; wing (in skins), 8.00-8.50; tail, 12.00-13.50. Feet deep black; iris brown, with bluish gray outer ring.

The occurrence of the Black-billed Magpie at present anywhere in Illinois is extremely doubtful. There is no recent record of its having been taken or even seen within the limits of the State, and its claim to a place in our fauna rests solely on Mr. Kennicott's statement that it is (or was at the time his list was published) a rare winter visitant to the extreme northern counties.

The nest of the Magpie is a very bulky and somewhat remarkable structure, composed exteriorly of sticks of various sizes, forming a spherical mass, the upper portion of which forms a canopy to the nest proper, the entrance being through one side. The eggs are usually six in number, but often as many as nine, and are of a pale olive or grayish white color, thickly speckled with olive-brown.

GENUS **CYANOCITTA** STRICKLAND.

Cyanocitta STRICKL. Ann. Nat. Hist. xv, 1845, 261. Type, *Corvus cristatus* LINN.

Cyanurus "SWAINSON," BAIRD, B. N. Am. 1858.—B. B. & R. Hist. N. Am. B. ii, 1874, 264, 271, et AUCT. (nec SWAINS.)

"GEN. CHAR. Head crested. Wings and tail blue, with transverse black bars; head and back of same color. Bill rather slender, somewhat broader than high at the base; culmen about equal to the head. Nostrils large, nearly circular, concealed by bristles. Tail about as long as the wings, lengthened, graduated. Hind claw large, longer than its digit." (*Hist. N. Am. B.*)

Two widely distinct species of this well-marked genus belong to North America, one of them being peculiar to the Eastern Province, the other restricted to the mountainous portions of the Western Province, and south through Mexico to Guatemala and Honduras. The latter is divided into several geographical races, as follows: (1) *C. coronata (vera)*, Honduras, Guatemala, and southern México; (2) *C. coronata diademata*, central Mexico; (3) *C. coronata maculophya*, Rocky Mountains of the United States; (4) *C. coronata annectens*, northern Rocky Mountains; (5) *C. coronata stelleri*, northwest coast, from the northern Coast Range of California to Sitka; (6) *C. coronata frontalis*, Sierra Nevada range. These races are very distinct when typical examples are compared; so much so, in fact, that were not true intergradation evident they would be considered separate species. They are all characterized in "History

of North American Birds," Vol. II. page 272, to which the reader is referred for further information.

Cyanocitta cristata (Linn.)

BLUE JAY.

Corvus cristatus LINN. S. N. ed. 10, i, 1758, 106; ed. 12, i, 1766, 157.—WILS. Am. Orn. i, 1808, 11, pl. 1, fig. 1.—NUTT. Man. i, 1832, 224.—AUD. Orn. Biog. ii, 1834, 11, v, 1839, 475, pl. 102.

Garrulus cristatus VIEILL. 1817.—SW. & RICH. F. B.-A. ii, 1831, 293.—AUD. B. Am. iv, 1842, 110, pl. 231.

Cyanurus cristatus BAIRD, B. N. Am. 1858, 580; Cat. N. Am. B. 1859, No. 434.—COUES, Key, 1872, 165; Check List, 1874, No. 234; B. N. W. 1874, 204.—B. B. & R. Hist. N. Am. B. ii, 271, 373, pl. 42, fig. 2.

Cyanocitta cristatus STRICKL. Am. Nat. Hist. 1845, 261.—RIDGW. Nom. N. Am. B. 1881, No. 289.—COUES, 2d Check List, 1882, No. 349.

HAB. Whole of eastern North America, north to 56° in the interior, west to the border of the Great Plains; resident and breeding throughout.

"SP. CHAR. Crest about one third longer than the bill. Tail much graduated. General color above light purplish blue; wings and tail-feathers ultramarine blue; the secondaries and tertials, the greater wing-coverts, and the exposed surface of the tail, sharply blended with black and broadly tipped with white, except on the central tail-feathers. Beneath white; tinged with purplish blue on the throat, and with bluish brown on the sides. A black crescent on the fore part of the breast, the horns passing forward and connecting with a half-color on the back of the neck. A narrow frontal line and loreal region black; feathers on the base of the bill blue, like the crown. Female rather duller in color, and a little smaller. Length, 12.25; wing, 5.65; tail, 5.75." (*Hist. N. Am. B.*)

Few of our birds are more numerous, and none, certainly, are better known than the Blue Jay. With us he has none of the shyness which characterizes him in the more eastern States, but makes himself at home in the door-yards and orchards, building his nest in the apple trees, in shade trees along the streets, or even among the vines trained up the sides of houses; and, with greater or less regularity, especially in winter, obtains a not inconsiderable portion of his or her daily food from the immediate vicinity of the kitchen door.

At Olney, Richland County, a Blue Jay's nest was, in the spring of 1865, found inside an old unused barn in the middle of the town, placed on a sill against the weatherboarding, in the upper part of the building.

FAMILY ALAUDIDÆ.—THE LARKS.

"CHAR. First primary very short or wanting. Tarsi scutellate anteriorly and posteriorly, with the plates nearly of corresponding position and number. Hind claw very long and nearly straight. Bill short, conical, frontal feathers extending along side of the bill; the nostrils concealed by a tuft of bristly feathers directed forward. Tertials greatly elongate beyond the secondaries." (*Hist. N. Am. B*)

The Alaudidæ are preëminently a Palearctic family, being numerously represented throughout Europe and central Asia, and with many members in the more open portion of the African continent. America possesses a single species, and that of circumpolar distribution.

"The most characteristic feature of the Larks among other oscinine families is seen in the scutellation of the tarsus. The anterior half of this is covered by divided scales lapping around on the sides, but instead of the two plates which go on each side of the posterior half and unite ultimately behind as an acute ridge, there is but one, which laps round on the sides, and is divided into scales like the anterior ones, but alternating with them. The posterior edge of the tarsus is as obtuse as the anterior, instead of being very acute. There is a deep separating groove on the inner side of the tarsus; and there may be really but one plate divided transversely, the edges meeting at this place.

"In the elongated hind claw and lengthened tertials, general style of coloration, mode of life, and manner of nesting, there is decided approximation in the *Alaudidæ* to the *Anthinæ*, of the family *Motacillidæ*; but in these the posterior edge of the tarsus is sharp and undivided transversely, the toes more deeply cleft, the bill more slender, etc.—their relations being rather nearer to the *Sylvicolidæ* than the present family." (*Hist. N. Am. B.*)

GENUS OTOCORIS BONAPARTE.

Eremophila BOIE, Isis, 1828, 322. Type, *Alauda alpestris* LINN. (*Nec Eremophilus* HUMB. 1805.)

Otocoris BONAP. Fauna Ital. Uccelli. Introd. 1839, (not paged).

GEN. CHAR. No spurious primary; bill small, scarcely higher than broad; nostrils circular (the nasal fossæ oblique), concealed by a dense tuft of feathers. Adult with a narrow tuft of feathers on each side of the crown (most developed in the male). Colors of the adult pinkish gray or brownish above, with more or less distinct streaks on the back; a black cheek patch and pectoral crescent (indistinct in the female).

This being the only American genus of Larks, there is no need in the present connection, for comparison with allied genera. There is only one American species, so far as known. This one (*O. alpestris*) inhabits all the more open portions of the continent, breeding from the table-lands of southern Mexico to the shores of the Arctic Ocean, and from the region of the Great Lakes (western New York, Ohio, etc.) to the Pacific. In the various faunal districts of this extensive area, it is divided into a number of well-marked geographical races, which have been distinguished by Mr. H. W. Henshaw ("Auk," I. p. 263) as follows:*

"*O. alpestris*. Size large; wing, 4.44; tail, 3.02; tarsus, .61; bill, .50. (Average of 19 males.) Nape, lesser wing-coverts, rump, etc., deep vinaceous. Habitat, northeastern North America, Labrador, Greenland.

"*O. alpestris praticola*. Size smaller; wing, 4.17; tail, 2.93; tarsus, .83; bill, .46. (Average of 19 males.) Nape, lesser wing-coverts, rump, etc., pale vinaceous; back dead gray, in contrast; whole aspect generally paler than in true *alpestris*. Habitat, Upper Mississippi Valley and region of Great Lakes.

"*O. alpestris leucolæma*. Size about as in *alpestris*; wing, 4.39; tail, 2.96; tarsus, .89; bill, .9. (Average of 12 males.) Chief character, paler; nape, lesser wing-coverts, rump, etc., very pale vinaceous; back gray, in contrast. Throat white or with but faint trace of yellow. Colors are still paler in fall; occasionally at this season there is some yellow on the throat. Habitat, British America and Alaska; western United States only in winter.

"*O. alpestris arenicola*. Size smaller than *leucolæma*; wing, 4.27; tail, 3.35; tarsus, .84; bill, .48. (Average of 16 males.) The colors similar to the last, but throat always decidedly yellow. Fall specimens are brighter, with more yellow on the throat and forehead. Habitat, Great Basin of United States and Rocky Mountains.

"*O. alpestris giraudi*. Wing, 3.78; tail, 2.57; tarsus, .80; bill, .43. (Average of 9 males.) General color above brownish gray; streaks of back very indistinct; yellow of throat bright; breast usually pale yellow. Habitat eastern and southeastern Texas.

"*O. alpestris chrysolæma*. Wing, 3.98; tail, 2.91; tarsus, .83; bill, .46. (Average of 4 males.) Much deeper in color than *arenicola*. Nape, etc., deep pinkish rufous; throat deep yellow, but breast always white. Habitat, Mexico, possibly across the border into southern Arizona and New Mexico.

"*O. alpestris rubea*. Wing, 3.51; tail, 2.71; tarsus, .77; bill, .45. (Average of 11 males.) General color above, deep cinnamon or ferruginous; throat bright yellow; streaks on dorsum nearly obsolete. Habitat, California.

"*O. alpestris strigata*. Wing, 3.99; tail, 2.75; tarsus, .76; bill, .44. (Average of 2 males.) Coloration above very dark; much less cinnamon than in either *rubea* or *chrysolæma*; back distinctly striped with dusky; breast usually yellow. In some fall specimens the yellow overspreads the entire under parts. Habitat, coast region of Washington Territory and Oregon."

* The color descriptions are based on males in breeding plumage.

Otocoris alpestris (Linn.)**SHORE LARK.**

Popular synonyms. Snow Lark; Snowbird; Prairie Lark; Skylark; American Skylark; Horned Lark.

Alauda alpestris LINN. S. N. ed. 10, i, 1758, 166.

Otocoris alpestris BP. Fauna Ital. Ucc. Introd. 1839 (not paged).—HENSHAW, Auk, July, 1884, 257, 263.

Eremophila alpestris BOIE, Isis, 1828, 322.—COUES, Key, 1872, 89; Check List, 1874, No. 53; 2d Check List, 1882, No. 82; 2d Key, 1884, 281 (part).—RIDGW. Nom. N. Am. B. 1881, No. 300 (part).

Eremophila alpestris var. *alpestris* B. B. & R. Hist. N. Am. B. ii, 1874, 143.

Eremophila alpestris a. *alpestris* COUES, B. N. W. 1874, 37.

Alauda cornuta WILS. Am. Orn. i, 1808, 87 (in text).—SW. & RICH. F. B.—A. ii, 1831, 121.

Eremophila cornuta BOIE, Isis, 1828, 322.—BAIRD, B. N. Am. 1858, 403; Cat. N. Am. B. 1859, No. 302.

This larger, darker colored form of the Shore Lark is an irregular winter visitant, sometimes, however, occurring in large flocks. Its habits are identical with those of the resident race.

Otocoris alpestris praticola (Hensh.)**PRAIRIE LARK.**

Popular synonyms. (Same as those of *alpestris* proper.)

Eremophila alpestris AUCT., ex-parte (*nec* BOIE).

Otocoris alpestris praticola HENSHAW, Auk, i, No. 3, July, 1884, 364.

HAB. Mississippi Valley and region of the Great Lakes, breeding, and resident, east to western New York.

SUBSP. CHAR. *Adult male in spring* (No. 90763, U. S. Nat. Mus., Richland Co., Ill., May 16, 1883; R. Ridgway): Posterior portion of crown, occiput, nape, sides of neck and breast, lesser wing-coverts, and shorter upper tail-coverts, light vinaceous; back, scapulars, and rump, grayish brown, the feathers with darker centres, becoming darker and much more distinct on the rump; middle wing-coverts light vinaceous terminally, brownish gray basally. Wings (except as described) grayish brown, the feathers with paler edges; outer primary with outer web chiefly white. Middle pair of tail-feathers light brown (paler on edges), the central portion (longitudinally) much darker, approaching dusky; remaining tail-feathers uniform black, the outer pair with exterior web broadly edged with white. Longer upper tail-coverts light brown, edged with whitish and marked with a broad lanceolate streak of dusky. Forehead (for about .15 of an inch) yellowish white, this continued back in a broad superciliary stripe of nearly pure white; fore part of crown (for about .35 of an inch) deep black, continued laterally back to and including the ear-like tufts; lores, suborbital region, and broad patch on cheeks (with convex posterior outline) deep black; jugular crescent also deep black, this extending to the lower part of throat; chin and throat pale straw-yellow, gradually fading into white on sides of foreneck; anterior half of ear-coverts white, posterior half drab-gray, each portion forming a crescent-shaped patch. Lower parts posterior to the jugular crescent pure white, the sides of the breast light vinaceous, the sides similar but browner and indistinctly streaked with darker. Upper mandible plumbeous black, lower bluish plumbeous; iris deep brown; legs and feet brownish black. Wing, 4.30; tail, 2.85; culmen, .47; tarsus, .85.

Adult male in winter (No. 93583, Gainesville, Texas, Feb. 12, 1884; G. H. Ragsdale): Similar to the spring plumage, but darker, with the vinaceous somewhat obscured by grayish brown, the black by pale tips to the feathers, and yellow of throat slightly deeper. Wing, 4.20; tail, 3.00; culmen, .43; tarsus, .85.

Adult female in spring (No. 90760, Richland Co., Ill., May 25, 1884; R. Ridgway): Above grayish brown, the pileum narrowly and distinctly, the dorsal region broadly and less sharply, streaked with dusky; nape, lesser wing-coverts, and shorter upper tail-coverts dull light vinaceous, the first very indistinctly streaked. A narrow frontlet and broad superciliary stripe (the latter very sharply defined above) dull white; lores, suborbital region, and triangular patch on cheeks, dull brownish black, without sharp definition posteriorly; auriculars drab, the anterior half lighter; chin and throat white, the former faintly tinged with yellowish; jugulum crossed by a distinct band of black, narrower and less intense in color than in the male; rest of lower parts white, tinged with pale brownish on breast, the sides (especially of breast) pale isabella-brownish, the flanks indistinctly streaked with darker. Wing, 3.85; tail, 2.50; culmen, .45; tarsus, .80.

Adult female in winter (No. 85417, Mt. Carmel, Ill., Dec. 20, 1874; S. Turner): Differing from the summer plumage in being browner, and with the streaks on the pileum less distinct, the whitish frontlet obsolete, and the superciliary stripe less sharply defined; the lores, suborbital region, and cheeks dull brownish, like the auriculars, the latter with an indistinctly lighter central spot; chin and throat dull buffy white, with a tinge of straw-yellow, changing to clearer buffy white on sides of foreneck; jugulum with an indistinct blackish patch, the feathers broadly bordered with dull whitish. Whole breast and sides light isabella-color, indistinctly streaked with darker; abdomen and crissum white. Wing, 3.75; tail, 2.45; culmen, .40; tarsus, .80.

Young, first plumage (male, No. 90761, May 29, and female, No. 90792, May 16, Richland Co., Ill.; R. Ridgway): Above brownish black, the wings brownish; back dotted with sharply defined deltoid and rhomboid specks of white; pileum with similar but much more minute markings, and rump also varied in the same manner, but spots rather more transverse than on the back. Lesser and middle wing-coverts brownish black, broadly tipped with buffy white; greater coverts dusky, edged with isabella-brown, and narrowly tipped with pale buff; prevailing color of closed remiges isabella-brown, the tertials, however, darker brown, bordered with buff, this bordered internally with a dusky sub-margin. Lower parts dull white, the jugulum, sides of breast, and sides, dull isabella-buff, spotted or clouded with dusky.

Measurements: wing, 4.30; tail, 3.08; tarsus, .80; bill, .45 (largest of 16 males).

Measurements: wing, 4.10; tail, 2.80; tarsus, .78; bill, .45 (smallest of 16 females).

"The first indications of a departure from the type of the true *alpestris* are to be noticed in the region to the south and west of the Great Lakes, especially in Illinois. The birds of this region are to be distinguished as a race from *alpestris* proper by smaller size and by paler colors. Specimens in the breeding plumage are at hand from Minnesota, Wisconsin, Michigan, New York, Illinois, Indiana, Missouri, and eastern Kansas. Those from Michigan are paler than any of the others, and suggest an approach to the *leucolæma* type.

"In connection with this race, it is of interest to note that it appears to be gradually extending its range and to be encroaching on a territory which by reason of recent deforestation has been made to approach the conditions this prairie-loving species seeks. Thus Dr. C. H. Merriam writes that it has made its appearance in Lewis

county, New York, within a very few years, and appears to be gaining a foothold there. The number of specimens of this form before me is very large, and while they show it to be a well-marked race, especially when extremes of either form are compared, they also prove that on the one hand it intergrades with *alpestris* and on the other with *leucolæma*, according as the respective regions inhabited by these forms are approached. Certain specimens also from Kansas more than hint that, as we go westward, it passes into *arenicola* of the plains. A winter specimen of this form from Texas indicates the extent of its dispersion at this season." (HENSCHAW, l. c.)

This common but by no means well-known bird is a constant resident throughout the State, except in the wooded districts, although the same individuals probably nowhere remain the year round in any one locality. It is mostly confined to the prairie portions, but has spread to all the cultivated districts, and there is no doubt that its range has greatly extended of late years as the country has become more cleared of forest and a greater area brought under cultivation.

FAMILY TYRANNIDÆ.—THE TYRANT FLYCATCHERS.

CHARACTERS. "Primaries ten. Bill in typical forms broad, triangular, much depressed, abruptly decurved and notched at tip, with long bristles along gape. Tarsi with scutellæ extending around the outer face of tarsus from the front to back; sometimes divided on the outer side. Bill with culmen nearly as long as the head, or shorter; straight to near the tip, then suddenly bent down into a conspicuous hook, with a notch behind it; tip of lower jaw also notched. Commissure straight to near the notch; gonys slightly convex. Nostrils oval and rounded, in the anterior extremity of the nasal groove, and more or less concealed by long bristles which extend from the posterior angle of the jaws along the base of the bill, becoming smaller, but reaching nearly to the median line of the forehead. These bristles with lateral branches at the base. Similar bristles are mixed in the loreal feathers and margin the chin. Tarsi short, generally less than middle toe, completely enveloped by a series of large scales, which meet near the posterior edge of the inner side, and are separated either by naked skin or by a row of small scales. Sometimes a second series of rather large plates is seen on the posterior face of the tarsus; these, however, usually on the upper extremity only. Basal joint of middle toe united almost throughout to that of the outer toe, but more than half free on the inner side; outer lateral toe rather the longer. Wings and tail variable; first quill always more than three fourths the second. The outer primaries sometimes attenuated near the tip.

"The primary characters given above will serve to distinguish the North American *Tyrannidæ* from their allies; the essential features consisting in the peculiarity of the scales of the tarsus and the ten primaries. In the *Sylvicolidæ* there are species as truly "flycatching," and with a depressed bristly bill, but the nine (not ten) primaries, and the restriction of the scales to the anterior face of the tarsus, instead of extending entirely round the outer side, will readily separate them." (*Hist. N. Am. B.*)

The following analysis of genera is taken from "History of North American Birds" (Vol. II, pp. 307, 308), those belonging exclusively to the southwestern border of the United States being omitted.

TYRANNI. Size large; colors generally brilliant; crown with a brighter colored crest, usually concealed; outer primaries abruptly contracted or attenuated near the tip; upper scales of tarsus usually continuing round on the outside and behind. Nest in trees, very bulky, containing much downy material; eggs white or pinkish, with ovate dots of rich brown, of various shades.

Milvulus. Tail exceedingly forked and lengthened; more than twice as long as the wings.

Tyrannus. Tail moderate, nearly even or slightly forked; less than the wings.

TYRANNULI. Size generally small; colors usually plain; crown without any colored crest concealed by the tips of the feathers; primaries normal; scales of the upper part of the tarsus usually continuing only to the middle of the outer face, and a second series opposite to them behind.

1. Tail lengthened; about equal to the wings, which reach scarcely to the middle.

Myiarchus. Tarsus equal to the middle toe, which is decidedly longer than the hinder one. Tail even or rounded. Throat pale ash, rest of lower parts yellow generally, the primaries edged with rufous, and inner webs of tail-feathers with more or less of the same color. Nest in a cavity of a tree, of loose material; eggs whitish, with intricate tangled lines and streaks of dark brown, the general effect salmon-color.

Sayornis. Tarsus rather longer than the middle toe, which is scarcely longer than the hind toe. Tail slightly forked. Bill very narrow. No light orbital ring, nor distinct bands on wings; both mandibles black. Nest attached to rocks or parts of buildings, very compact and bulky, containing much mud in its composition; eggs pure white, immaculate, or with very minute sparse dots near larger end.

2. Tail decidedly shorter than the wings, which reach beyond its middle. Tarsus shorter than the middle toe.

Contopus. Hind toe much longer than the lateral. Tail considerably forked. Wings long, pointed; much longer than the tail, reaching beyond the middle of the latter; first quill about equal to the fourth. Bill broad. Color olive-gray, and white, sometimes with a yellowish tinge beneath. Lower mandible pale colored. Nest saucer-shaped, compact, and very small, saddled very securely upon a thick branch; eggs cream-colored, with a zone of lilac and rich brown blotches round the large end.

3. Tail shorter than the wings, as in the last. Tarsus considerably longer than the middle toe; hind toe much longer than the lateral. Tail nearly even, sometimes slightly rounded, but little shorter than the wings; first primary much shorter than the fourth.

Empidonax. Head moderately crested; tail about even. Bristles of bill reaching about half way to tip. Legs stout. A conspicuous light orbital ring, and distinct band, on the wing. More or less tinged with sulphur-yellow on lower parts. Nest variously constructed, deeply cup-shaped, compact or loose, entirely of either grassy or fibrous and downy material, and fixed to slender twigs or lodged in a crotch between thick branches; eggs white, immaculate, or with blotches of brown round larger end.

GENUS *TYRANNUS* CUVIER.

Tyrannus CUVIER, Leçons Anat. Comp. 1793, abl. ii. Type, *Lanius tyrannus* LINN.

GEN. CHAR. Tyrant-birds of large medium, or rather small size, with strong, conical bills, strongly bristled rictus, even, emarginated, or slightly rounded tail, and the ends of the outer primaries abruptly narrowed. Crown with a concealed colored crest (red, orange, or yellow); plumage without streaks or bars.

The above brief diagnosis, although imperfect, will suffice to distinguish the members of *Tyrannus* from those of allied genera. *Melvius* agrees in the attenuation of the outer primaries, the colored crest, and many other features, but the tail is excessively forked, the lateral feathers twice, or more, as long as the middle pair. *Pitangus* is also quite similar in many respects, but has the bill

more elongated, less depressed, the outlines straighter, while there are various other differences. Upon the whole, the genus may be considered quite a natural group.

The species vary among themselves not only in colors, but in other respects also, each one having its own peculiarities of external form, so that were all identical in coloration they could even then be readily distinguished. Attempts have been made to subdivide the genus, but all have proved unsatisfactory. There is, truly, a vast difference in size and form between the robust, almost gigantic, *T. magnirostris*, and the little *T. aurantio-atrocristatus*; but as other species are variously intermediate, it seems best to consider the variations of form and size in this genus as of mainly specific importance.

The single eastern species and two western ones which may be expected to occur in Illinois differ from one another as follows:

A. Lower parts white, upper parts blackish.

1. *T. tyrannus*. Wings black, feathers margined with white. Tail black, sharply tipped with white.

B. Lower parts yellow, ashy anteriorly; upper parts ashy olive.

2. *T. verticalis*. Wings brownish dusky, feathers indistinctly edged with paler. Tail deep black, the outer webs of lateral feathers pure white, in abrupt contrast. Throat and jugulum pale ashy-gray.
3. *T. vociferans*. Wings light brownish gray, the feathers with paler edges. Tail dull black, the tip dull grayish, as are also the outer webs of the lateral feathers. Throat and jugulum deep slate-gray.

Tyrannus tyrannus (Linn.)

KINGBIRD.

Popular synonyms. Bee Bird; Bee Martin.

Lanius tyrannus LINN. S. N. ed. i, 1758, 94; ed. 12, i, 1766, 136.

Muscicapa tyrannus WILS. Am. Orn. i, 1808, 66, pl. 13, fig. 1.—NUTT. Man. 1, 1832, 265.—

AUD. Orn. Biog. i, 1840, 453; v, 1842, 429, pl. 79; Synop. 1839, 40; B. Am. i, 1839, 204, pl. 56.

Tyrannus tyrannus JORD. Man. Vert. ed. 4, 1884, 95.

Lanius tyrannus, var. *γ. carolinensis* GMEL. S. N. i, 1788, 302.

Tyrannus carolinensis TEMM. Tabl. Meth. 1836, 24.—BAIRD. B. N. Am. 1858, 171; Cat.

N. Am. B. 1859, No. 124.—COUES, Key, 1872, 169; Check List, 1874, No. 242; 2d ed. 1882,

No. 368; B. N. W. 1874, 235.—B. B. & R. Hist. N. Am. B. ii, 1874, 316, pl. 43, fig. 4.—

RIDGW. Nom. N. Am. B. 1881, No. 304.

HAB. Eastern North America, north to 57° in the interior, west, regularly, to and including the Rocky Mountains, and irregularly to the Pacific coast, especially along northern boundary of the United States; in winter, the whole of Middle America, and south to Peru and Bolivia; Cuba and Bahamas.

"SP. CHAR. *Adult.* Above black, becoming plumbeous on the back, scapulars, and rump; large wing-coverts and remiges edged with whitish; upper tail-coverts bordered with white, and tail broadly tipped with the same. Below pure white, strongly shaded with ash-gray across the jugulum. Middle of the crown with a concealed patch of bright orange-red. *Young.* Above dusky brownish-slate, the wing-coverts bordered with pale

fulvous, the remiges with dull whitish; upper tail-coverts bordered with pale rusty; tail tipped with pale fulvous, or brownish white. Beneath as in the adult, but jugulum tinged with pale fulvous. No colored patch on vertex.

Wing, 4.45-4.75; tail, 3.40-3.75; bill, from nostril, .50-.57, depth at base, .24-.27; width, .37-.40; tarsus, .70-.78; middle toe, .55-.60.

The Bee Bird or Bee Martin is a very common bird throughout the State, and its general habits are well known. It is a summer resident, arriving in April and departing early in September.

"No one of our common birds," says Dr. Brewer, "possesses more strongly marked characteristics of manners and habits than this species. Its pugnacious disposition during the breeding-season, the audacious boldness with which it will attack any bird larger than itself, the persistent tenacity with which it will continue these attacks, and the reckless courage with which it will maintain its unequal warfare, are well-known peculiarities of this interesting and peculiar species. Its name, Kingbird, is given it on the supposition that it is superior to all other birds in these contests. My own observations lead me to the conclusion that writers have somewhat exaggerated the quarrelsome disposition of this bird. I have never, or very rarely, known it to molest or attack any other birds than those which its own instinct prompts it to drive away in self-defense, such as Hawks, Owls, Eagles, Crows, Jays, Cuckoos and Grakles. These it will always attack and drive off to quite a distance from their nests. Nothing can be more striking than the intrepidity with which one of these birds will pounce upon and harass birds vastly larger and more powerful than itself. The Kingbird is always prompt to perceive the approach of one of these enemies, and always rushes out to meet it. Mounting in the air high above, it pounces down upon its back, upon which it will even rest, furiously pecking at the exposed flanks of its victim, and only leaving it to descend again and again with the same unrelenting animosity. In these encounters it always comes off conqueror."

GENUS **MYIARCHUS** CABANIS.

Myiarchus CABANIS, Tschudi's Fauna Peruana, 1844-46, 152. Type, *Muscoicapa ferox* GMEL.

"GEN. CHAR. Tarsus equal to or longer than the middle toe, which is decidedly longer than the hind one. Bill wider at base than half the culmen. Tail broad, long, even, or slightly rounded, about equal to the wings, which scarcely reach to the middle of the tail;

the first primary shorter than the sixth. Head with elongated lanceolate distinct feathers. Above brownish olive, throat ash, belly yellow. Tail and wing feathers varied with rufous. (*Hist. N. Am. B.*)

This genus is one of the most strongly marked in the entire family. This species are of exceptionally irritable, pugnacious disposition, continually quarreling among themselves, and during the breeding-season, attacking all larger birds which approach the vicinity of the nest. The latter is placed within holes in trees, and the eggs are remarkable for the fine and intricate pencilings of various rich shades of brown upon a creamy ground. In fact they are among the most striking in their color and markings of all bird's eggs.

A single species (*M. crinitus*) inhabits eastern North America, another (*M. cinerascens*) replacing it in the west.

***Myiarchus crinitus* (Linn.)**

CRESTED FLYCATCHER.

Popular synonyms. Great Yellow-bellied Flycatcher; Great crested Flycatcher.

Muscicapa crinita LINN. S. N. ed. 12, i, 1766, 325.—WILS. Am. Orn. ii, 1810, 75, pl. 13, fig. 2.—NUTT. Man. i, 1832, 271.—AUD. Orn. Biog. ii, 1834, 176; v, 1829, 423, pl. 129; Synop. 1839, 40; B. Am. i, 1840, 209, pl. 57.

Tyrannus crinitus SW. 1826.—NUTT. Man. 2d ed. 1840, 302.

Myiarchus crinitus CAB. 1855.—BAIRD, B. N. Am. 1858, 128; Cat. N. Am. B. 1859, No. 130.—COUES, Key, 1872, 171; Check List, 1874, No. 247; 2d ed. 1882, No. 373; B. N. W. 1874, 238.—B. B. & R. Hist. N. Am. B. ii, 1874, 334, pl. 43, fig. 3.—RINGW. Nom. N. Am. B. 1881, No. 312.

HAB. Eastern United States and British Provinces, but rare northeastward beyond the Connecticut valley; west to the edge of the Great Plains. In winter, Guatemala, and south to Costa Rica; Cuba?

"SP. CHAR. Head with a depressed crest. Third quill longest; fourth and second successively but little shorter; first a little longer than seventh; much shorter than sixth. Tail decidedly rounded or even graduated; the lateral feathers about .25 of an inch shorter. Upper parts dull greenish olive, with the feathers of the crown and to some extent of the back showing their brown centres; upper tail-coverts turning to pale rusty brown. Some feathers at the base of the bill, lores, sides of the head as high as the upper eyelid, sides of the neck, throat, and forepart of the breast, bluish ash; the rest of the lower parts, including axillaries and lower wing-coverts, bright sulphur-yellow. A pale ring round the eye. Sides of the breast and body tinged with olivaceous. The wings brown; the first and second rows of coverts, with the secondary and tertial quills, margined externally with dull white, or on the latter slightly tinged with olivaceous yellow. Primaries margined externally for more than half their length from the base with ferruginous; greater portion of the inner webs of all the quills very pale ferruginous. The two middle tail-feathers light brown, shafts paler; the rest have the outer web and a narrow line on the inner sides of the shaft brown, pale olivaceous on the outer edge; the remainder ferruginous to the very tip. Outer web of exterior feather dull brownish yellow. Feet black. Bill dark brown above and at the tip below; paler towards the base. Length, 8.75; wing, 4.25; tail, 4.10; tarsus, .85."

"The young is hardly appreciably different, having merely the wing-coverts tinged with rusty at the ends." (*Hist. N. Am. B.*)

This bird, while probably more numerous than the Kingbird, at least in the more heavily wooded districts, is by no means so well known. It is essentially a woodland species, being commonest in the wildest parts of the forest, where its shrill, querulous, whistling notes are in accord with the surroundings. It is by no means confined to such localities, however, but frequently takes up its abode in orchards, even in the midst of towns, and occasionally becomes rather a familiar bird. At Mount Carmel several pairs nested every summer inside the town limits, and one pair raised a brood in a nest which was built in a window corner of the county jail, a brick building, which stood in the very centre of the town. The usual position, however, of the nest of this species is a hole in a tree, either a natural cavity or a deserted Woodpecker's hole. The nest, as a rule, is composed of a very miscellaneous assortment of materials, such as dried grasses, feathers, hair, etc., to which is usually added one or more cast-off snake skins, perhaps for ornament. The eggs are probably more remarkable for their coloring and marking than those of any other North American bird, being "scratched" over with lines of rich purple and brown on a buffy or cream-colored ground.

While rarely attacking birds of large size, the Great Crested Flycatcher is a tyrant among the smaller species, charging with great impetuosity upon every one which comes in the immediate vicinity of the nesting place.

GENUS **SAYORNIS** BONAPARTE.

Sayornis BONAP. Coll. Delattre, 1854, 87. Type, *Tyrannula nigricans* SWAINS.
Aulanax CABANIS, Journal für Orn. 1856, 1. Same type.

"GEN. CHAR. Head with a blended depressed moderate crest. Tarsus decidedly longer than middle toe, which is scarcely longer than the hind toe. Bill rather narrow; width of base about half the culmen. Tail, broad, long, slightly forked; equal to the wings, which are moderately pointed, and reach to the middle of the tail. First primary shorter than sixth." (*Hist. N. Am. B.*)

This genus agrees with *Myiarchus* in the length of the broad tail, but has a longer tarsus and a different style of coloration.

The three North American species, although very distinct in coloration, agree closely in habits. They are all familiar birds, fond of the society of man, taking up their abode about the barn-yard, and placing their nests underneath the carriage-shed or any suitable place about the farm buildings.

One species (*S. nigricans*) is confined to the Pacific coast and the southern border, and thence south into Mexico. Another (*S. saya*) has a very extensive distribution over the western portions of the continent, and has even been once taken in Illinois. Our list therefore includes two of the three species, which may be distinguished as follows:

A. Belly white or sulphur-yellowish.

1. *S. phæbe*. Above grayish olive, the head much darker; beneath dull white or sulphur-yellowish, the sides of the breast grayish.

B. Belly tawny ochraceous

2. *S. saya*. Above brownish gray, the tail black; throat and breast grayish, rest of lower parts tawny ochraceous.

Sayornis phœbe (Lath.)

PHEBE.

Popular synonyms. Pewee; Barn Pewee or Phœbe; Bridge Pewee or Phœbe; Pewit Flycatcher.

Muscicapa fusca GMEL. S. N. i, 1788, 93 (*nec* BODD. 1783).—AUD. Orn. Biog. ii, 1834, 122; v, 1839, 424, pl. 120; Synop. 1839, 43; B. Am. i, 1840, 223, pl. 63.

Tyrannus fuscus NUTT. Man. ed. 2, i, 1840, 312.

Sayornis fuscus BAIRD, B. N. Am. 1858, 184; Cat. N. Am. B. 1859, No. 135.—COUES, Key, 1872, 172; Check List, 1874, No. 252; 2d ed. 1882, No. 379; B. N. W. 1874, 241.—B. & R. Hist. N. Am. B. ii, 1874, 343, pl. 45, fig. 2.—RIDGW. Nom. 1881, No. 315.

Muscicapa atra GMEL. S. N. i, 1788, 946 (*nec* MULL. 1776).—NUTT. Man. i, 1832, 278.

Muscicapa phœbe LATH. Ind. Orn. ii, 1790, 489.

Sayornis phœbe STEJN. Auk. ii, Jan. 1885, 51.

Muscicapa nunicola WILS. Am. Orn. ii, 1810, 78, pl. 13, fig. 4.

HAB. Eastern United States and British Provinces, west to the edge of the Great Plains; winters in more southern United States (north to about 38°), and eastern Mexico south to Vera Cruz; Cuba.

"SP. CHAR. Sides of breast and upper parts dull olive-brown, fading slightly towards the tail. Top and sides of head dark brown. A few dull white feathers on the eyelids. Lower parts dull yellowish white, mixed with brown on the chin, and in some individuals across the breast. Quills brown, the outer primaries, secondaries, and tertials edged with dull white. In some individuals the greater coverts faintly edged with dull white. Tail brown; outer edge of lateral feathers dull white; outer edges of the rest like the back. Tibiæ brown. Bill and feet black. Bill slender, edges nearly straight. Tail rather broad and slightly forked. Third quill longest; second and fourth nearly equal; the first shorter than sixth. Length, 7 inches; wing, 3.42; tail, 3.30.

"In autumn, and occasionally in early spring, the colors are much clearer and brighter. Whole lower parts sometimes bright sulphur-yellow; above, greenish olive; top and sides of the head tinged with sooty. In the young of the year the colors are much duller; all the wing-coverts broadly tipped with light ferruginous, as also the extreme ends of the wing and tail-feathers. The brown is prevalent

on the whole throat and breast; the hind part of the back, rump, and tail strongly ferruginous." (*Hist. N. Am. B.*)

The Pewee or Phœbe is one of that charming coterie of the feathered tribe who cheer the abode of man with their presence. Less numerous than the Chipping Sparrow, the Catbird, the Barn Swallow, or even the Bluebird, there are still few farm-yards without a pair of Pewees, who do the farmer much service by lessening the number of flies about the barn, and by calling him to his work in the morning with their cheery notes.

Says Dr. Brewer: "This species is attracted both to the vicinity of water and to the neighborhood of dwellings, probably for the same reason—the abundance of insects in either situation. They are a familiar, confiding, and gentle bird, attached to localities, and returning to them year after year. They build in sheltered situations, as under a bridge, under a projecting rock, in the porches of houses, and in similar situations. I have known them to build on a small shelf in the porch of a dwelling; against the wall of a railroad station, within reach of the passengers; and under a projecting window-sill, in full view of the family, entirely unmoved by the presence of the latter at meal time."

Sayornis saya (Bonap.)

SAY'S PHŒBE.

Popular synonyms. Say's Pewee; Say's Flycatcher; Rocky Mountain Pewee.

Muscicapa saya BP. Am. Orn. i, 1825, 20, pl. 2, fig. 2.—NUTT. Man. i, 1832, 277.—AUD. Orn. Biog. iv, 1838, 428, pl. 359; Synop. 1839, 41; B. Am. i, 1840, 217, pl. 39.

Tyrannus saya NUTT. Man. 2d ed. i, 1840, 311.

Sayornis sayus BAIRD, B. N. Am. 1858, 185; Cat. N. Am. B. 1859, No. 136.—COUES, Key, 1872, 172; Check List, 1874, No. 250; 2d ed. 1882, No. 377, ("sayi"); B. N. W. 1874, 240.—B. B. & R. Hist. N. Am. B. ii, 1874, 347, pl. 45, fig. 3.—RIDGW. Nom. N. Am. B. 1881, No. 316, ("sayi")

HAB. Western North America from the Great Plains to the Pacific, north, in the interior, to latitude 60°; straggling east to Michigan, Wisconsin, and northern Illinois. In winter, south to Vera Cruz, Mexico.

"SP. CHAR. Above and on the sides of the head, neck, and breast, grayish brown, darker on the crown; region about the eye dusky. The chin, throat, and upper part of the breast similar to the back, but rather lighter and tinged with the color of the rest of the lower parts, which are pale cinnamon. Under wing-coverts pale rusty white. The wings of a rather deeper tint than the back, with the exterior vanes and tips of the quills darker. Edges of the greater and secondary coverts, of the outer vane of the outer primary, and of the secondaries and tertials, dull white. The upper tail-coverts and tail nearly black. Edge of outer vane of exterior tail-feather white. Bill dark brown, rather paler beneath. The feet brown. Second, third, and fourth quills nearly equal; fifth nearly equal to sixth; sixth much shorter than the fifth. Tail broad, emarginate. Tarsi with a posterior row of scales. Length, 7 inches; wing, 4.30; tail, 3.35.

"The young of the year have the upper parts slightly tinged with ferruginous; two broad (ferruginous) bands on the wings formed by the tips of the first and second coverts. The quills and tail rather darker than in adult specimen.

"Autumnal specimens are simply more deeply colored than spring examples, the plumage softer and more blended." (*Hist. N. Am. B.*)

According to Mr. Nelson (*Bull. Essex Inst.* Vol. VIII., 1876, p. 113), "Two specimens of this species are registered in the catalogue of birds in the Museum of the Northwestern University, at Evanston, from 'West Northfield, Illinois, collected by R. Kennicott.' These specimens are not in the collection at present. Dr. Hoy has also taken it in Wisconsin."

GENUS *CONTOPUS* CABANIS.

Contopus CABANIS, Journ. für Ornith. iii, Nov. 1835, 479. Type *Muscicapa virens* LINN.

"GEN. CHAR. Tarsus very short, but stout; less than the middle toe and scarcely longer than the hinder; considerably less than the culmen. Bill quite broad at the base; wider than the culmen. Tail moderately forked. Wings very short and much pointed, reaching beyond the middle of tail; the first primary about equal to the fourth. All the primaries slender and rather acute, but not attenuated. Head moderately crested. Color olive above, pale yellowish beneath, with a darker patch on the sides of the breast. Under tail-coverts streaked in most species. A tuft of cottony white feathers on each side of the rump (concealed in most species).

"This genus is pre-eminently characterized among North American Flycatchers by the very short tarsi and the long and much pointed wings.

"In most other genera as *Sayornis*, *Myiarchus* and *Empidonax*, a trace of cottony tuft may be discovered by careful search on the flanks; but in the present genus, there is, in addition, the tufts on the rump, not found in the others." (*Hist. N. Am. B.*)

Of the four known North American species only two have not been recorded from the region east of the Mississippi River. One of them (*C. pertinax* CAB.) occurs only along the southern border in Arizona, and therefore cannot reasonably be expected; another, however (*C. richardsonii* SWAINS.), is of very general distribution throughout the west, and may very possibly sometimes stray east of the Missouri River. This species is therefore included in the synopsis along with the two which properly belong there.

A. Size large (wing 3.90 or more); side of rump with a conspicuous tuft of white cottony feathers.

1. **C. borealis.** Above brownish slaty darker on the head; beneath white medially, dark grayish, in marked contrast, laterally. Wing, 3.90-4.50; tail, 2.90-3.50.

B. Size small (wing 3.60 or less); sides of rump without conspicuous cottony tuft.

2. **C. virens.** Above olive-slaty, the head darker; sides olive-grayish, this color almost meeting across the breast; throat and abdomen whitish. Wing, 3.30-3.40; tail, 2.80-3.00.
3. **C. richardsonii.** Colors of *C. virens*, but breast uniform grayish, and upper parts with less of an olive tinge. Wing, 3.25-3.60; tail, 2.80-3.20.

Contopus borealis (Swains.)

OLIVE-SIDED FLYCATCHER.

Tyrannus borealis Sw. F. B.-A. ii, 1831, 141, pl. 35.

Contopus borealis BAIRD, B. N. Am. 1858, 188; Cat. N. Am. B. 1859, No. 137.—COUES, Key, 1872, 173; Check List, 1874, No. 253; 2d ed. 1882, No. 380; B. N. W. 1874, 243.—B. B. & R. Hist. N. Am. B. ii, 1874, 353, pl. 44, fig. 1.—RIDGW. Nom. N. Am. B. 1881, No. 318.

Muscicapa inornata "COOP. & NUTT." NUTT. Man. i, 1832, 235.

Muscicapa cooperi NUTT. Man. i, 1832, 282.—AUD. Orn. Biog. ii, 1834, 422; pl. 174; Synop. 1839, 41; B. Am. i, 1840, 212, pl. 58.

Tyrannus cooperi BP, 1838.—NUTT. Man. 2d ed. i, 1840, 293.

HAB. Whole of temperate North America, but colder regions only in summer, breeding from northern border of the United States northward, farther south on higher mountain ranges, especially westward; also breeding in more elevated districts of Mexico, and migrating south as far as Veragua.

"SP. CHAR. Wings long, much pointed; the second quill longest; the first longer than the third. Tail deeply forked. Tarsi short. The upper parts ashy brown, showing darker brown centres of the feathers; this is eminently the case on the top of the head; the sides of the head and neck, of the breast and body, resembling the back, but with the edges of the feathers tinged with gray, leaving a darker central streak. The chin, throat, narrow line down the middle of the breast and body, abdomen, and lower tail-coverts white or sometimes with a faint tinge of yellow. The lower tail-coverts somewhat streaked with brown in the centre. On each side of the rump, generally concealed by the wings, is an elongated bunch of white silky feathers. The wings and tail very dark brown, the former with the edges of the secondaries and tertiaries edged with dull white. The lower wing-coverts and axillaries grayish brown. The tips of the primaries and tail-feathers rather paler. Feet and upper mandible black, lower mandible brown. The young of the year similar, but the color duller; edges of wing-feathers dull rusty instead of grayish white. The feet light brown. Length, 7.50; wing, 4.33; tail, 3.30; tarsus, .60." (*Hist. N. Am. B.*)

The Olive-sided Flycatcher is confined almost exclusively to the northern coniferous forests, including their southern extension along the higher mountain ranges, the principal of which it follows through Mexico and Guatemala. Regarding its occurrence in Illinois, the only knowledge we have is Mr. Nelson's note (*Bull. Essex Inst.* VIII. 1876, p. 113), to the following effect:

"Not an uncommon migrant, from May 15th to 25th and the last of September and the first of October. I have taken one specimen as late as June 2d. It may breed."

Contopus virens (Linn.)**WOOD PEWEE.**

Muscicapa virens LINN. S. N. ed. 12, i. 1766, 327.—NUTT. Man. 1, 1832, 295.—AUD. Orn. Biog. ii, 1834, 93; v, 1839, 425, pl. 115; Synop. 1839, 42; B. Am. i, 1840, 231, pl. 64.

Tyrannus virens NUTT. Man. 2d ed. i, 1840, 316.

Contopus virens CAB. 1855.—BAIRD, B. N. Am. 1858, 190; Cat. N. Am. B. 1859, No. 139.—COUES, Key, 1872, 173; Check List, 1874, No. 255; 2d ed. 1882, No. 382; B. N. W. 1874, 245.—B. B. & R. Hist. N. Am. B. ii, 1874, 357, pl. 44, fig. 3.—RIDGW. Nom. N. Am. B. 1881, No. 320.

Muscicapa rapax WILS. Am. Orn. ii, 1811, 81, pl. 13, fig. 5.

HAB. Eastern United States and British Provinces, west to edge of the Great Plains, breeding throughout. In winter, eastern Mexico, and Central America, south to Guatemala. (Said by AUDUBON to winter in Louisiana and Florida, but this statement is unconfirmed by later observers.)

"SP. CHAR. The second quill longest; the third a little shorter; the first shorter than the fourth. The latter nearly .40 longer than the fifth. The primaries more than an inch longer than the secondaries. The upper parts, sides of the head, neck, and breast, dark olivaceous brown, the latter rather paler, the head darker. A narrow white ring round the eye. The lower parts pale yellowish, deepest on the abdomen; across the breast tinged with ash. The pale ash sometimes occupies the whole of the breast, and even occasionally extends to the chin. It is also sometimes glossed with olivaceous. The wings and tail dark brown; generally deeper than in *S. fuscus*. Two narrow bands across the wing, the outer edge of the first primary and the secondaries and tertials, dull white. The edge of the tail-feathers like the back; the outer one scarcely lighter. Upper mandible black; the lower yellow, but brown at the tip. Length, 6.15; wing, 3.50; tail, 3.05.

"A large series shows considerable variations; autumnal specimens have a more appreciable tinge of yellow on the lower parts, while summer individuals are more grayish." (*Hist. N. Am. B.*)

Modest and retiring in its habits, plain in dress, and quiet in manner, this little bird, although one of the most abundant species, is by no means well known. If noticed at all, it is generally confounded with the common Pewee (*Sayornis phæbe*); but a little observation is sufficient to show how very distinct they are. The Wood Pewee will sit almost motionless for many minutes, in an erect position, on some dead twig or other prominent perch, patiently watching for its insect prey. While in this position is apparently so fixed, however, its eyes are constantly on the alert, and close watching will show that the bird now and then turns its head as its glance follows the course of some distant insect, while anon the feathers of the crown are raised, so as to form a sort of blunt pyramidal crest. This sentinel-like attitude of the *Contopus* is in marked contrast to the restless motion of *Sayornis*, who, even if perched, keeps its tail constantly in motion, while the bird itself seldom remains long in a fixed position. The notes of the two

species are as different as their habits, those of the Wood Pewee being peculiarly plaintive,—a sort of wailing *p-e-e-e-i, wee*, the first syllable emphasized and long drawn out, and the tone a clear, plaintive wiry whistle, strikingly different from the cheerful, emphatic notes of the true Pewee. Says Dr. Brewer (*Hist. N. Am. B.*, Vol. II., p. 358):

“This species, like all its family, is a very expert catcher of insects, even the most minute, and has a wonderful quick perception of their near presence, even when the light of day has nearly gone and in the deep gloom of the thick woods. It takes its station at the end of a low, dead limb, from which it darts out in quest of insects, sometimes for a single individual, which it seizes with a peculiar snap of its bill; and, frequently meeting insect after insect, it keeps up a constant snapping sound as it passes on, and finally returns to its post to resume its watch. During this watch it occasionally is heard to twitter, with a quivering movement of the wings and tail, and more rarely to enunciate a louder but still feeble call-note, sounding like ‘pêê-é.’”

The nest of this species, which is always “saddled” and securely attached to a rather stout branch, usually lichen-covered, is one of the most elegant examples of bird architecture. From beneath, it usually so much resembles a natural protuberance of a branch, or knotty excrescence, that but for its betrayal by the owner it would seldom be discovered. It is a very compact saucer-shaped structure, with thick walls, and the whole exterior is a beautiful “mosaic” of green, gray, and glaucous lichens. The eggs themselves are extremely handsome, having a rich but delicate cream-colored ground, and ornamented by a “wreath” round the larger end of rich madder-brown, purple, and lilac spots.

GENUS **EMPIDONAX** CABANIS.

Empidonax CABANIS, Journal für Ornithologie, iii, Nov. 1855. 480. Type, *Tyrannula pusilla* SWAINS.

“GEN. CHAR. Tarsus lengthened, considerably longer than the bill, and exceeding the middle toe, which is decidedly longer than the hind toe. Bill variable. Tail very slightly forked, even, or rounded; a little shorter only than the wings, which are considerably rounded; the first primary much shorter than the fourth. Head moderately crested. Color olivaceous above, yellowish beneath; throat generally gray.

“The lengthened tarsi, the short toes, the short and rounded wings, and the plain dull olivaceous of the plumage, readily distinguish the species of this genus from any other North American Flycatchers. The upper plates of the tarsi in a good many species do not encircle the outside, but meet there a row on the posterior face.” (*Hist. N. Am. B.*)

The following species occur, more or less abundantly, throughout the State:

A. Tail emarginated.

1. *E. flaviventris*. Above olive-green, beneath light greenish yellow, shaded with olive across the breast. Wing, 2.45-2.75; tail, 2.30-2.55.
2. *E. minimus*. Above olive-gray, beneath whitish, slightly shaded with gray across the breast. Wing-bands grayish white. Wing, 2.25-2.65; tail, 2.25-2.50; bill, from nostril, .23-.30; width at base, .22-.25.

B. Tail even or slightly rounded.

3. *E. pusillus traillii*. Above brownish olive, or grayish olive-brown, beneath white, the sides of the breast strongly shaded with the color of the back, the flanks and crissum tinged with sulphur-yellow. Wing-bands dull grayish, or brownish gray. Wing, 2.60-2.90; tail, 2.45-2.75.
4. *E. acadicus*. Above grayish green, or greenish gray, beneath white, shaded with olive on sides of breast. Wing-bands buffy white, or pale buff. *Young transversely mottled above*. Wing, 2.80-3.15; tail, 2.50-2.85.

Empidonax flaviventris Baird.

YELLOW-BELLIED FLYCATCHER.

Tyrannula flaviventris WM. M. & S. F. BAIRD, Pr. Phil. Ac. i, 1843, 233.

Muscicapa flaviventris AUD. B. Am. vii, 1844, 341, pl. 490.

Empidonax flaviventris BAIRD, B. N. Am. 1858, 198; Cat. N. Am. B. 1859, No. 144.—COUES Key, 1872, 175; Check List, 1874, No. 259; 2d ed. 1882, No. 338; B. N. W. 1874, 255.—B. B. & R. Hist. N. Am. B. ii, 1874, 378, pl. 44, fig. 12.—RIDGW. Nom. N. Am. B. 1881, No. 322.

HAB. Eastern North America, breeding from northern border of United States northward (for an undetermined distance); in winter, eastern Mexico, and south to Colombia. Accidental in Greenland. (Replaced in western United States by an allied, but apparently distinct species, the *E. difficilis* BAIRD.)

"SP. CHAR. Second, third and fourth quills nearly equal; first intermediate between fifth and sixth. Tail nearly even, slightly rounded. Tarsi long. Above bright olive-green (back very similar to that of *Vireo noveboracensis*); crown rather darker. A broad yellow ring around the eye. The sides of the head, neck, breast and body, and a band across the breast, like the back, but lighter; the rest of the lower parts bright greenish sulphur-yellow; no white or ashy anywhere on the body. Quills dark brown; two bands on the wing formed by the tips of the middle and secondary coverts, the outer edge of the first primary and of the secondaries and tertials pale yellow, or greenish yellow. The tail-feathers brown, with the exterior edges like the back. The bill dark brown above, yellow beneath. The feet black. In the autumn the colors are purer, the yellow is deeper, and the markings on the wings of an ochrey tint. Length, 5.15; wing, 2.83; tail, 2.45." (*Hist. N. Am. B.*)

"First plumage: male. Above uniform yellowish olive. Beneath dull yellow, with a brownish cast, tinged strongly with olive upon the throat, breast and sides. Wing-bands brownish yellow. Altogether very similar to the adult. From a specimen in my collection shot at Upton, Me, August 4, 1874." (BREWSTER, Bull. Nutt. Orn. Club, Oct. 1876, p. 178.)

This inconspicuous bird is known in Illinois only as a migrant, but it may possibly breed in the extreme northern portion of the State, since it has been found by Dr. Hoy to be a summer resident in the vicinity of Racine, Wisconsin. In its habits it is essentially similar to other species of the genus, though in the position and composition of its nest it differs from all except its western representative, *E. difficilis* Baird. The nest is bulky, made largely of moss and soft materials, and is placed often in some cavity of an old log or stump, near the ground. The eggs, like those of *E. acadicus* and *E. traillii*, are spotted.

Empidonax minimus Baird.

LEAST FLYCATCHER.

Muscicapa acadica "GM." NUTT. Man. i, 1832, 288 (*nec* Gmel.).

Tyrannula minima WM. M. & S. F. BAIRD, Pr. Phil. Academy, i, 1843, 284.

Muscicapa minima AUD. B. N. Am. vii, 1844, 343, pl. 491.

Empidonax minimus BAIRD, B. N. Am. 1858, 195; Cat. N. Am. B. 1859, No. 142.—COUES,

Key, 1872, 175; Check List, 1874, No. 258; 2d ed. 1882, No. 377; B. N. W. 1874, 254.—B. B.

& R. Hist. N. Am. B. ii, 1874, 372 pl. 44, figs. 10.—RIDGW. Nom. N. Am. B. 1881, No. 326.

HAB. Eastern North America, breeding from northern border of United States north to subarctic districts; west regularly to border of Great Plains, irregularly to base of Rocky Mountains. In winter, eastern Mexico, Guatemala and Honduras.

"**SP. CHAR.** Second quill longest; third and fourth but little shorter; fifth a little less; first intermediate between fifth and sixth. Tail even. Above olive-brown, darker on the head, becoming paler on the rump and upper tail-coverts. The middle of the back most strongly olivaceous. The nape (in some individuals) and sides of the head tinged with ash. A ring around the eye and some of the loreal feathers white; the chin and throat white. The sides of the throat and across the breast dull ash, the color on the latter sometimes nearly obsolete; sides of the breast similar to the back, but of a lighter tint; middle of the belly very pale yellowish white, turning to pale sulphur-yellow on the sides of the belly, abdomen, and lower tail-coverts. Wings brown; two narrow white bands on the wing, formed by the tips of the first and second coverts, succeeded by one of brown. The edge of the first primary, and of the secondaries and tertials, white. Tail rather lighter brown, edged externally like the back. Feathers narrow, not acuminate, with the ends rather blunt. In autumn the white parts are strongly tinged with yellow. Length, about 5.00; wing, 2.65; tail, 2.50. Young with ochraceous, instead of grayish-white wing-bands." (*Hist. N. Am. B.*)

"**First plumage:** male. Similar to the adult, but with a stronger olive cast, and a faintly indicated collar of ashy brown across the nape. Wing-bands light reddish brown. Beneath almost precisely similar to the adult, with perhaps a slightly stronger yellowish cast upon the abdomen and crissum. Distinguishable from *E. traillii* and *E. acadicus* in corresponding stages by the decidedly paler and less yellowish under parts; especially by the nearly clear ashy on the sides of the breast. From a specimen in my collection taken at Cambridge, Mass., July 2, 1872. Other specimens in first plumage before me differ little from the one above described, but *autumnal specimens*, singularly enough, are much yellower below and more olivaceous above." (BREWSTER, Bull. Nutt. Orn. Club, Oct. 1878, p. 178.)

This retiring little bird, like its congeners, has nothing in its habits to bring it into general notice. It is therefore almost wholly un-

known except to the ornithologist. In Illinois it is a summer resident in the northern portions and a migrant southward; but the southern limit of its breeding range is at present unknown.

***Empidonax pusillus traillii* (Aud.)**

TRAILL'S FLYCATCHER.

Muscicapa traillii AUD. Orn. Biog. i, 1832, 236; v, 1839, 426, pl. 45; Synop. 1839, 43; B. Am. i, 1840, 234, pl. 65.

Tyrannus traillii NUTT. Man. 2d ed. i, 1840, 323.

Empidonax traillii BAIRD, B. N. Am. 1853, 193; Cat. N. Am. B. 1859, No. 140.—COUES, Key, 1872, 175; Check List 1874, No. 257; B. N. W. 1874, 252.

Empidonax pusillus var. *traillii* B. B. & R. Hist. N. Am. B. ii, 1874, 369, pl. 44, fig. 8.

Empidonax pusillus traillii RIDGW. Nom. N. Am. B. 1881, No. 325 a.—COUES, 2d Check List, 1882, No. 335.

HAB. Eastern North America, breeding from Missouri, Illinois, Ohio, and New England northward (for an undetermined distance); wintering in eastern Middle America, south to Colombia.

"SP. CHAR. Third quill longest; second scarcely shorter than fourth; first shorter than fifth, about .35 shorter than the longest. Primaries about .75 of an inch longer than secondaries. Tail even. Upper parts dark olive-green; lighter under the wings, and duller and more tinged with ash on nape and sides of the neck. Centre of the crown-feathers brown. A pale yellowish white ring (in some specimens altogether white) round the eye. Loral feathers mixed with white. Chin and throat white; the breast and sides of throat light ash tinged with olive, its intensity varying in individuals, the former sometimes faintly tinged with olive. Sides of the breast much like the back. Middle of the belly nearly white; sides of the belly, abdomen, and the lower tail-coverts, sulphur-yellow. The quills and tail-feathers dark brown, as dark (if not more so) as these parts in *C. virens*. Two olivaceous yellow-white bands on the wing, formed by the tips of the first and second coverts, succeeded by a brown one; the edge of the first primary and of secondaries and tertials a little lighter shade of the same. The outer edge of the tail-feathers like the back; that of the lateral one rather lighter. Bill above dark brown; dull brownish beneath. Length, nearly 6.00; wing, 2.90; tail, 2.60. *Young* with the wing-bands ochraceous instead of grayish olive.

"This species is most closely related to *E. minimus*, but differs in larger size and the proportions of quills. The middle of the back is the same color in both, but instead of becoming lighter and tinged with ash on the rump and upper tail-coverts, these parts very rarely differ in color from the back. The markings on the wings, instead of being dirty white, are decidedly olivaceous grayish. The yellow of the lower parts is deeper. The tail-feathers are rather broad, acuminate, and pointed; in *minimus* they are narrow and more rounded, while the tail itself is emarginated, instead of square, as in the present bird. The bill is larger and fuller. The legs are decidedly shorter in proportion." (*Hist. N. Am. B.*)

Although less numerous than the Acadian Flycatcher, at least in the southern part of the State, Traill's Flycatcher is not an uncommon summer resident. In general habits it so much resembles the species named as to be undistinguishable except by the critical observer. The two are often found in the same localities, but Traill's Flycatcher is of a more familiar disposition, and may often be found in close proximity to dwellings, especially in orchards, while the other is seldom seen in such places.

Empidonax acadicus (Gmel.)

ACADIAN FLYCATCHER.

Popular synonym. Green-crested Flycatcher.

Muscivora acadica GMEL. S. N. i, 1788, 947.—AUD. Orn. Biog. ii, 1834, 256; v, 1839, 429, pl. 144; Synop. 1839, 42; B. Am. i, 1840, 221, pl. 62.

Empidonax acadicus BAIRD. B. N. Am. 1858, 197; Cat. N. Am. B. 1859, No. 143.—COUES, Key, 1872, 174; List, 1874, No. 256; 2d ed. 1882, No. 384; B. N. W. 1874, 249.—B. B. & R. Hist. N. Am. B. ii, 1874, 374, pl. 44, fig. 11.—RIDGW. Nom. N. Am. B. 1881, No. 324.

Muscivora querula "VIEILL." WILS. Am. Orn. ii, 1810, 77, pl. 13, fig. 3 (*nec* VIEILL.).

HAB. Eastern United States, breeding nearly throughout, but rare in New England, where scarcely found beyond the Connecticut valley; north, in the interior, to Canada West. In winter, Cuba and Yucatan, possibly Gulf States also.

"SP. CHAR. The second and third quills are longest, and about equal; the fourth a little shorter; the first about equal to the fifth, and about .35 less than the longest. Tail even. The upper parts, with sides of the head and neck, olive-green; the crown very little if any darker. A yellowish white ring round the eye. The sides of the body under the wings like the back, but fainter olive; a tinge of the same across the breast; the chin, throat, and middle of the belly white; the abdomen, lower tail and wing-coverts, and sides of the body not covered by the wings, pale greenish yellow. Edges of the first primary, secondaries and tertials margined with dull yellowish white, most broadly on the latter. Two transverse bands of pale yellowish (sometimes with an ochrey tinge) across the wings, formed by the tips of the secondary and middle coverts, succeeded by a brown one. Tail light brown, margined externally like the back. Upper mandible light brown above; pale yellow beneath. In autumn the lower parts are more yellow. Length, 5.65; wings, 3.00; tail, 2.75. *Young* (60892, Mt. Carmel, Ill., August 11, 1870; R. RIDGWAY): Whole upper surface with indistinct transverse bars of pale ochraceous; wing-markings light ochraceous.

This species is very similar to *E. traillii*, but the upper parts are of a brighter and more uniform olive-green, much like that of *Vireo olivaceus*. The feathers of the crown lack the darker centre. There is less of the olivaceous ash across the breast. The bands across the wing are light yellowish, instead of grayish olive. There is much more yellow at the base of the lesser quills. The wings are longer, both proportionally and absolutely. The primaries ex-

ceed the secondaries by nearly an inch, instead of by only about .70; the proportions of the quills are much the same." (*Hist. N. Am. B.*)

This is probably the most numerous and generally distributed species of the genus in the State. It occurs as a summer resident, in all damp woodlands, but may easily pass unnoticed by the casual observer.

ORDER **MACROCHIRES**.—THE GOATSUCKERS, SWIFTS, AND HUMMINGBIRDS.

CHARACTERS. Wings much lengthened, with 10 primaries; tail-feathers, 10; gape very wide and deeply cleft, or else, (*i. e.*, Sub-order *Trochili*), bill long and slender, the tongue extensile, and secondaries only six in number.

Following is an analysis of the Families which have usually been assigned to this Order. It may be remarked that the *Trochilidæ* possess very special characters which in the opinion of some systematists entitle them to rank as a distinct Order (*Trochili*). The *Trochilidæ* and *Micropodidæ* being very much more nearly related than either of these groups are to the *Caprimulgidæ*, it is obvious that the so-called "Order Macrochires" is a decidedly artificial group.

- A.** Secondaries more than 6; bill short, very broad at base, the gape deeply cleft; plumage not metallic.
 - a.** Middle toe much longer than lateral toes, its claw with inner edge pectinated; gape distinctly bristled; plumage much spotted and otherwise varied, the feathers soft, with downy or moth-like surface. (Sub-order *Caprimulgi*). **Caprimulgidæ.**
 - b.** Middle toe not distinctly longer than lateral toes, its claws without pectinated edge; gape without bristles; plumage plain and compact. (Suborder *Cypseli*). **Micropodidæ.**
- B.** Secondaries only 6; bill long as head, or longer, slender, the gape not deeply cleft, plumage more or less metallic; size diminutive. (Suborder *Trochili*). **Trochilidæ.**

FAMILY TROCHILIDÆ.—THE HUMMINGBIRDS.

CHAR. Size variable, but usually the smallest of birds. Bill subulate, but very variable as to length; usually longer than the head, and generally straight, but occasionally curved or even (in two genera) recurved. Feet exceedingly small and weak, the tarsus not longer than the middle toe; claws well curved, sharp. Tail of ten feathers, exceedingly variable as to shape. Wing Swift-like, with exceedingly short secondaries and strongly developed primaries; the latter ten; of which the first is longest, except in a single genus (*Aithurus*); secondaries six. Plumage, variable, but usually adorned with brilliant metallic tints, especially in the males.

The range of variation in the details of form, size, and other attributes among the four hundred and fifty known species of this remarkable family is something wonderful, and it is therefore difficult to frame a diagnosis which shall express in few words the exclusive characters of the family as a whole. Many species are no larger than a common "Bumble Bee," but the largest is fully equal to our Chimney Swift (*Chaetura pelagica*) in size. One species has the bill only a quarter of an inch in length, while in another this member is developed to the enormous length of three and a quarter to four and a quarter inches, or more than the combined length of the head, neck, body, and tail of the bird itself. In the genera *Avocettula* and *Avocettinus* the bill is recurved terminally; but in *Eutoxeres* it has exactly a sickle-shape. The form and relative development of the rectrices vary to such an extraordinary degree that a whole chapter might be devoted to this topic alone; but here it will suffice to refer to this part of the subject briefly: In the genera *Cynanthus* and *Sappho* the lateral rectrices are greatly lengthened, with broad and rounded ends; the rest gradually shorter to the middle pair, which are only one fourth to one fifth of the length of the outer pair. The tail is therefore deeply forficat, and when spread is V-shaped. In the adult males the tail feathers glow with the most brilliantly burnished metallic hues—green blue and violet in *Cynanthus*, fiery red and crimson in *Sappho*—the color varying with the species. In *Steganura* and *Discura* the lateral rectrices are greatly elongated, gradually narrowed toward the end

until the webs are almost or completely gone, and then suddenly expanded into a broad paddle-shaped tip. In *Heliactin* the tail is lengthened and greatly graduated, being, in fact, shaped very much as in the common Mourning Dove (*Zenaidura carolinensis*) or Wild Pigeon (*Ectopistes migratoria*). But the most wonderful form of all is to be seen in the *Loddigesia mirabilis*, in which two of the rectrices consist of simple bare shafts which extend for some three inches beyond the tips of the coverts, and bear at their ends a broad leaf-shaped paddle more than an inch in length and nearly as much in breadth. Other genera have the rectrices needle-shaped, club-shaped, etc., while the majority have the tail composed of feathers not remarkable for any peculiarity of form.

"The bill of the Hummingbird is awl-shaped or subulate; thin, and sharp-pointed; straight or curved; sometimes as long as the head, sometimes much longer. The mandibles are excavated to the tip for the lodgment of the tongue, and form a tube by the close apposition of their cutting edges. There is no indication of stiff, bristly feathers at the base of the mouth. The tongue has some resemblance to that of the Woodpeckers in the elongation of the cornua backwards, so as to pass around the back of the skull, and then anteriorly to the base of the bill. The tongue itself is of very peculiar structure, consisting anteriorly of two hollow threads closed at the ends and united behind. The food of the Hummingbirds consists almost entirely of insects, which are captured by protruding the tongue in flowers of various shapes without opening the bill very wide." (*Hist. N. Am. B.*)

The Hummingbirds, more than any other family, constitute the most remarkable feature of the New World bird-life. They have absolutely no representatives in any other part of the world, the Swifts being the nearest relatives they have in other countries.

Hummingbirds abound most in mountainous countries, where the configuration of the surface and productions of the soil are most diversified within small areas. Their centre of abundance is among the northern Andes, between the parallels of 10°, on each side of the equator, from which region they gradually diminish in numbers both to the northward and southward, but much more rapidly toward the extensive lowlands of the eastern portion of the continent. Their northern limit of abundance may be approximately given as the Tropic of Cancer, beyond with but few of forty-six or more Mexican species extend, while only thirteen of them have been detected across the boundary line in the equally

mountainous portions of the southwestern United States, including the semi-tropical Rio Grande valley. Small as this number may appear, the southwestern portion of the Union may be considered richly represented when compared with the vast valley of the Mississippi and the Atlantic water-shed—a region of unsurpassed fertility and luxuriant vegetation, yet which throughout its whole extent, even including the peninsula of Florida, possesses only a single species. In this scarcity, compared with the western mountainous regions, of representatives of a numerous family of birds, we see a certain parallelism with the lowlands of eastern South America as compared with the Andean highlands, only, on account of climatic differences, the contrast is more marked.

We have therefore to consider but a single genus or species of Hummingbird in the present work, none of the western species coming sufficiently near to render their occurrence in the least probable.

GENUS *TROCHILUS* LINNÆUS.

Trochilus LINNÆUS, Systema Natura, ed. 10. i, 1758, 119. Type (by elimination) *T. colubris* LINN.

GEN. CHAR. Male with the metallic gorget of the throat nearly even all round. Tail forked; the feathers lanceolate, acute, becoming gradually narrower from the central to the exterior. Inner six primaries abruptly and considerably smaller than the outer four, and with the inner web notched at the end.

The female has the outer tail-feathers somewhat lanceolate, as in the male, though much broader. They are broad to the terminal third, where they become rapidly pointed, the tip only somewhat rounded; the sides of this attenuated portion (one or the other, or both) broadly and concavely emarginated, which distinguishes them from the females of *Selasphorus* and *Calypte*, in which the tail-feathers are broadly linear to near the end, which is much rounder and without any distinct concavity.

Trochilus colubris Linn.

RUBY-THROATED HUMMINGBIRD.

Trochilus colubris LINN. S. N. ed. 10, i, 1758, 120.—WILS. Am. Orn. ii, 1810, 26, pl. 10, figs. 3, 4.—NUTT. Man. i, 1832 588.—AUD. Orn. Biog. i, 1832, 248; v 1839, 544, pl. 47; Synop. 1839, 170; B. Am. iv. 1842, 190, pl. 253.—BAIRD, B. N. Am. 1858 131; Cat. N. Am. B. 1859, No. 101.—COUES, Key, 1872, 184; Check List, 1874, No. 275; 2d ed. 1882, No. 410; B. N. W. 1874, 271.—B. B. & R. Hist. N. Am. B. ii, 1874, 448, pl. 48, fig. 2.—RIDGW. Nom. N. Am. B. 1881, No. 335.

HAB. Eastern North America, north to 57° in the interior; in winter, Cuba, Bahamas, eastern Mexico, and Central America, south to Veragua; also Bermudas.

"SP. CHAR. Tail in the male deeply forked; the feathers all narrow lanceolate-acute. In the female slightly rounded and emarginate; the feathers broader, though pointed. Male, uniform metallic green above; a ruby-red gorget (blackish near the bill); with no conspicuous ruff; a white collar on the jugulum; sides of body greenish; tail-feathers uniformly brownish violet. *Female*, without the red on the throat; the tail rounded and emarginate, the inner feathers shorter than the outer; the tail-feathers banded with black, and the outer tipped with white; no rufous or cinnamon on the tail in either sex. Length, 3.25; wing, 1.60; tail, 1.25. *Young* males are like the females; the throat usually spotted, sometimes with red; the tail is, in shape, more like that of the old male." (*Hist. N. Am. B.*)

Little need be said as to the habits of the well-known Hummingbird. Its distribution is general over every portion of the State—or indeed over every portion of the continent from the Great Plains to the Atlantic coast and from Canada to the Gulf of Mexico. Arriving among us when spring has fairly come, and departing just before the first autumnal frosts, these little birds traverse a distance in their migrations that appears almost impossible to creatures so minute, many individuals making their winter homes as far south as Veragua, in the State of New Granada, immediately north of the Isthmus of Panama.

When captured, the Hummingbird becomes in a short time so tame as to sit confidently on one's finger and sip syrup (best made of white sugar dissolved in warm water) from a saucer, but on account of its delicate organization and susceptibility to cold, attempts to keep it in confinement during winter have failed. The late Mr. John Gould, author and publisher of the most magnificently illustrated bird-books ever produced—probably the finest of them being a monograph of the Hummingbirds—succeeded in taking several specimens across the Atlantic to England; but they died almost immediately after their arrival in that country.

FAMILY MICROPODIDÆ.—THE SWIFTS.

"**CHAR.** Bill very small, without notch, triangular, much broader than high; the culmen one sixth the gape. Anterior toes cleft to the base, each with three joints (in the typical species), and covered with skin or feathers; the middle claw without any serrations; the lateral toes nearly equal to the middle. Bill without bristles, but without minute feathers extending along the under margin of the nostrils. Tail feathers ten. Nostrils elongated, superior and very close together. Plumage compact. Primaries ten, elongated, falcate.

The *Micropodidæ* (formerly *Cypselidæ*), or Swifts, "are Swallow-like birds, generally of rather dull plumage and medium size. They were formerly associated with the true Swallows on account of their small, deeply cleft bill, wide gape, short feet, and long wings, but are very different in all the essentials of structure, belonging, indeed, to a very different order or suborder. The bill is much smaller and shorter; the edges greatly inflected; the nostrils superior, instead of lateral, and without bristles. The wing is more falcate, with ten primaries instead of nine. The tail has ten feathers instead of twelve. The feet are weaker, without distinct scutellæ; the hind toe is more or less versatile, the anterior toes frequently lack the normal number of joints, and there are other features which clearly justify the wide separation here given especially the difference in the vocal organs. Strange as the statement may appear, their nearest relatives are the *Trochilidæ*, or Hummingbirds, notwithstanding the bills of the two are as opposite in shape as can readily be conceived." (*Hist. N. Am. B.*)

The Swifts are as poorly represented in eastern North America as the Hummingbirds, only a single species (the common Chimney Swift, *Chatura pelagica*), occurring east of the Rocky Mountains. The family is of cosmopolitan range, species occurring in nearly all parts of the world.

GENUS CHÆTURA STEPHENS.

Chætura STEPHENS, Shaw's Gen. Zool., Birds, xiii, ii, 1825, 76. Type *Hirundo pelagica* LINN.

"**GEN. CHAR.** Tail very short, scarcely more than two fifths the wings; slightly rounded; the shafts stiffened and extending some beyond the feathers in a rigid spine.

First primary longest. Legs covered by the naked skin, without scutellæ or feathers. Tarsus longer than middle toe. Lateral toes equal, nearly as long as the middle. Hind toe scarcely versatile, or quite posterior; including claw, less than the middle anterior without it. Toes slender; claws moderate. Feathers of the base of the bill not extending beyond the beginning of the nostrils." (*Hist. N. Am. B.*)

This genus has numerous representatives in tropical America, while in the western United States, especially the Pacific coast, occurs the *C. vauxii* (Townsend), a species allied to but quite distinct from the *C. pelagica*.

Chætura pelagica (Linn.)

CHIMNEY SWIFT.

Popular synonyms. Chimney Swallow; Chimney Sweep.

Hirundo pelagica LINN. S. N. ed. 10, i, 1758, 192.

Chætura pelagica B. & R. *Hist. N. Am. B.* ii, 1874, 432, pl. 45, fig. 7.—COUES, B. N. W. 1874, 267.

Hirundo pelagica LINN. S. N. ed. 12, i, 1766, 345.—WILS. *Am. Orn.* v, 1812, 43, pl. 39, fig. 1.

Cypselus pelagius BP. 1828.—NUTT. *Man.* i, 1832, 609.—AUD. *Orn. Biog.* ii, 1835, 329; v, 1839, 419, pl. 153.

Chætura pelagica STEPH. 1825.—AUD. *Synop.* 1839, 33; B. *Am.* i, 1840, 104, pl. 44.—BAIRD, B. N. *Am.* 1855, 144; Cat. N. *Am. B.* 1859, No. 109.—COUES, *Key*, 1872, 183; *Check List*, 1874, No. 271.

Chætura pelagica RIDGW. *Nom. N. Am. B.* 1881, No. 351.—COUES, 2d *Check List*, 1882, No. 405.

HAB. Eastern United States and British Provinces. *Winter quarters unknown.*

SP. CHAR. Above dark sooty grayish, paler on rump and upper tail-coverts, and with a faint greenish gloss; wings darker than back. Beneath lighter sooty gray, the chin and throat much paler. Bill black; iris brown; feet livid grayish. Total length, 5.25-5.40; extent, 12.30; wing, 5.00-5.20; tail, 1.90-2.15.

This Swift, the only species inhabiting eastern North America, is abundant throughout the country, and its general habits are so well known as to make special mention of them in this connection superfluous. One interesting fact connected with the Chimney Swift may however be alluded to, viz., the circumstance that its winter home is absolutely unknown to ornithologists. No specimens taken at any locality south of the Gulf coast have been recorded, while no one seems to have ever seen one anywhere in the United States in winter. It has been asserted by some writers that it passes the winter in a state of inanition or torpidity, many hundreds or thousands of them hibernating together, like bats, in hollow trees. But this statement requires verification. Chimney Swifts are, however, exceedingly gregarious except when nesting, it being a common sight, in nearly all parts of the coun-

try to see at evening dense swarms, consisting of thousands of individuals, descending into unused chimneys, to roost during the night. Indeed, so many thus congregate together within a comparatively limited space that they must certainly cling fast to one another like bees when "swarming." The following description of a "swallow tree" in the northern part of the State is clipped from the *Chicago Times*:

"Among the attractions at Grand Lodge is a 'swallow tree,' which stands on the shore directly in front of the Island House. The swallows commence to assemble about 7:30 p. m., forming a circle around the top of the tree until three or four thousand have arrived, and then rapidly disappear beneath the foliage. The tree is a sycamore, is hollow its entire length, and has been inhabited by swallows for nine successive years, the visitors not varying four days in the date of their arrival; viz., from the twenty-fourth to the twenty-ninth of April. They leave their resting place every morning at sunrise, and take their final departure when frost comes."

Before the country became thickly settled, the "Chimney Swallow" nested habitually in hollow trees, especially sycamores, having a large hollow trunk, opening, like a chimney, at the top. The writer has found nests thus situated at Mount Carmel, and at the same place discovered another glued to the inside of an outbuilding built of upright planks.

FAMILY CAPRIMULGIDÆ.—THE GOATSUCKERS.

CHAR. Bill very short; the gape enormously long and wide, opening to beneath or behind the eyes. Culmen variable. Toes connected at base by a movable skin; secondaries lengthened; plumage soft, sometimes very full and loose, as in the Owls.

The above brief diagnosis is sufficient to distinguish this family from all others in North America, especially when taken in connection with that given on page 358.

The North America genera are distinguished by the following characters:

- A.** Gape with conspicuous bristles; tail even or rounded.
 - a.* Tarsus feathered in front almost to the toes, and shorter than the middle toe. First quill longer than the fourth.
 - 1. **Antrostomus.** Tail rounded, shorter than the wing.
 - b.* Tarsus entirely naked in front, and longer than the middle toe. First quill shorter than the fourth.
 - 2. **Phalænoptilus.** Tail even and much shorter than the wing. Plumage with a peculiarly soft, velvety surface. Sexes with the tail not differently marked.
 - 3. **Nyctidromus.** Tail rounded, long as the wing. Sexes with the tail very differently marked.
- B.** Gape without conspicuous bristles; tail emarginated or slightly forked.
 - 4. **Chordeiles.**

GENUS ANTROSTOMUS GOULD.

Antrostomus GOULD, *Icones Avium*, 1838. Type, *Caprimulgus carolinensis* GM.

GEN. CHAR. Bill very small, with tubular nostrils, and the gape with long, stiff, sometimes pectinated bristles projecting beyond the end of the bill. Tarsi shorter than middle toe, chiefly feathered. Tail broad, rounded; wings broad and rounded; first quill shorter than third, but longer than the fourth; plumage soft and lax. Habits nocturnal.

The two North American species, both of which occur in Illinois, may be distinguished as follows:

- A.** Rictal bristles with lateral filaments. Wing more than 8 inches.
 - 1. **A. carolinensis.** *Male.* Terminal half or third of inner webs of three outer tail-feathers buffy whitish or ochraceous. *Female.* Outer tail-feathers without light tips.
- B.** Rictal bristles without lateral filaments. Wing less than 7 inches.
 - 2. **A. vociferus.** *Male.* Tail-feathers (except middle pair) with terminal third of both webs white. *Female.* Tail-feathers without white tips.

Antrostomus carolinensis (Gmel.)**CHUCK-WILL'S-WIDOW.**

Popular synonym. Dutch Whip-poor-will.

Caprimulgus carolinensis GMEL. S. N. 1, 1788, 1028.—WILS. Am. Orn. iv, 1811, 95, pl. 54, fig. 2.—NUTT. Man. i, 1832, 612.—AUD. Orn. Biog. i, 1832, 273; v, 1839, 401, pl. 52; Synop. 1839, 31; B. Am. i, 151, pl. 41.

Antrostomus carolinensis GOULD, Icones Avium.—BAIRD, B. N. Am. 1858, 147; Cat. N. Am. B. 1859, No. 1833.—COUES, Key, 1872, 180; Check List, 1874, No. 264; 2d ed. 1882, No. 396; B. N. W. 1874, 263.—B. B. & R. Hist. N. Am. B. ii, 1874, 410, pl. 46, fig. 1.—RIDGW. Nom. N. Am. B. 1881, No. 353.

HAB. South Atlantic and Gulf States, and lower Mississippi Valley, north to southern Illinois and Indiana; in winter, eastern Mexico and south to Costa Rica; Cuba?

SP. CHAR. Bristles of gape with lateral filaments. Above, finely mottled gray, ochraceous, tawny, and black; the pileum with broad irregular streaks of black, the scapulars with irregular blotches of the same; primaries dusky, spotted with ochraceous rufous. Lower parts mixed tawny ochraceous and grayish, vermiculated and transversely barred with dusky; the gular region and crissum with ochraceous prevailing. *Male.* Inner webs of three outer tail-feathers with terminal third, or more, white (ochraceous on lower surface). *Female.* Inner webs of outer rectrices without white. Wing, 8.70-8.90; tail, 6.26-6.30.

The Chuck-will's-widow is essentially a southern bird, the extreme northern limit of its range being the lower Wabash valley, where, as far north as Mount Carmel it is, or at least was, not uncommon. The writer has heard its easily recognized notes as far north as the then (in 1865) heavily timbered Big Creek bottoms in Richland County, about three miles south of the town of Olney. Its habits are essentially the same as those of the Whip-poor-will, and its notes are somewhat similar, but louder, and easily distinguished after once being heard.

Antrostomus vociferus (Wils.)**WHIP-POOR-WILL.**

Caprimulgus vociferus WILS. Am. Orn. v, 1812, 71, pl. 41, figs. 1, 2, 3.—NUTT. Man. i, 1832, 614.—AUD. Orn. Biog. i, 1832, 443; v, 1839, 405, pl. 52; Synop. 1839, 32; B. Am. i, 1840, 155, pl. 42.—RIDGW. Nom. N. Am. B. 1881, No. 354.

Antrostomus vociferus BP. 1838.—BAIRD, B. N. Am. 1858, 148; Cat. N. Am. B. 1859, No. 112.—COUES, Key, 1872, 180; Check List, 1874, No. 265; 2d ed. 1882, No. 397; B. N. W. 1874, 260.—B. B. & R. Hist. N. Am. B. ii, 1874, 413, pl. 46, fig. 2.

HAB. Eastern United States and British Provinces, north to about 50° in the interior; winters in Gulf States, and south through eastern Mexico to Guatemala. (Replaced in Arizona and table-lands of Mexico by *A. vociferus arizonæ* Brewster.)

SP. CHAR. Bristles of gape without lateral filaments. Above finely mottled gray, brown and tawny, the gray prevailing on the pileum, which has a median series of black longitudinal blotches, with narrower streaks on each side. Scapulars blotched with black;

primaries dusky, spotted with ochraceous rufous. Beneath, mottled grayish, brown, and buff, vermiculated with black, the lower part of the throat crossed by a bar of white or ochraceous. *Adult male*. Tail-feathers (except middle pair) with terminal third (approximately) of both webs white. *Adult female*. Tail without any white, but three outer rectrices tipped with buff or ochraceous. Wing, 6.20-6.70; tail, 5.10-6.50.

Although so well known by its familiar nocturnal song, the Whip-poor-will is a bird that comparatively few people have seen. This is accounted for by its strictly nocturnal habits. Its flight, says Dr. Brewer (*Hist. N. Am. B.* Vol. II., p. 415), "is noiseless to an incredible degree," and is by no means protracted. "They are usually very shy, and are easily startled if approached. At night, as soon as the twilight disappears, these birds issue from their retreats, and fly out into more open spaces in quest of their favorite food. As many of the nocturnal insects, moths, beetles, and others, are attracted about dwellings by lights, the Whip-poor-will is frequently enticed, in pursuit, into the same vicinity. For several successive seasons these birds have appeared nearly every evening within my grounds, often within a few feet of the house. They never suffer a very near approach, but fly as soon as they notice any movement. Their pursuit of insects is somewhat different from that narrated of the preceding species, their flights being usually quite brief, without any perceptible sailing, and more in the manner of Flycatchers. Their song is given out at intervals throughout the night, until near the dawn.

"The nocturnal habits of this bird have prevented a general or accurate knowledge of its true character. Strange as it may seem, in many parts of the country the Night-Hawk and the Whip-poor-will are supposed to be one and the same bird, even by those not ill-informed in other respects."

GENUS **CHORDEILES** SWAINSON.

Chordeiles SWAINSON, Fauna Bor.-Amer. ii, 1831, 337. Type, *Caprimulgus virginianus* GMEL.

GEN. CHAR. Bill small, the nostrils depressed; the gape with feeble, inconspicuous bristles. Wings long, narrow, and pointed, the first quill nearly or quite equal to the second. Tail rather narrow, slightly forked; plumage quite compact. Habits diurnal or crepuscular.

• Many species of this genus belong to America, although but two that are well characterized enter into the fauna of the United States. These are easily distinguished as follows:

1. *C. virginianus*. Outer webs of primaries without ochraceous spots; white patch on primaries extending over five outer quills, anterior to their middle portion.

2. *C. texensis*. Outer webs of primaries more or less spotted with rufous or ochraceous; white patch on primaries extending over only four quills, and posterior to their middle portion.

Chordeiles virginianus (Gmel.)

NIGHTHAWK.

Popular synonyms. Whip-poor-will; Bull Bat; Will-o'-the-wisp (Connecticut).

Caprimulgus virginianus Gm. S. N. i, 1788, 1028 (part only).—NUTT. Man. i, 1832, 619; ii, 134, 609.—AUD. Orn. Biog. ii, 1834, 273; v, 1839, 406, pl. 147.

Caprimulgus (Chordeiles) virginianus Sw. & RICH. F. B.-A. ii, 1831, 337.

Chordeiles virginianus BP. 1838.—AUD. Synop. 1839, 32; B. Am. i, 1840, 259, pl. 43.—COUES, Key, 1872, 351; Check List, 1874, No. 267; 2d ed. 1882, No. 399; B. N. W. 1874, 263.

Caprimulgus popetue VIEILL. O. A. S. i, 1807, 56, pl. 24 (female).

Chordeiles popetue BAIRD, B. N. Am. 1858, 151; Cat. N. Am. B. 1859, No. 114.—B. B. & R.

Hist. N. Am. B. ii, 1874, 401.—RIDGW. Nom. N. Am. B. 1881, No. 357.

Caprimulgus americanus WILS. Am. Orn. v, 1812, 65, pl. 40, figs. 1, 2.

HAB. Eastern North America, north to Hudson's Bay; in winter, Bahamas, Cuba, Jamaica, and eastern tropical America to Brazil.

SP. CHAR. *Male*. Above greenish black, with but little mottling on the head and back. Wing-coverts varied with grayish; scapulars with yellowish rufous. A nuchal band of fine gray mottling behind which is another coarser one of rufous spots. A white V-shaped mark on the throat; behind this a collar of pale rufous blotches, and another on the breast of grayish mottling. Under parts banded transversely with dull yellowish or reddish white and brown. Wing quills quite uniformly brown. The five outer primaries with a white blotch (about half an inch long) midway between the tip and carpal joint, not extending on the outer web of the outer quill. Tail with a terminal white patch which does not reach the outer edge of the feathers. *Female* without the caudal white patch, the white tail-bands more mottled, the white of the throat mixed with reddish. Length of male, 9.50; wing, 8.20. (*Hist. N. Am. B.*)

First plumage. Above dull black, irregularly marbled everywhere with reddish fawn-color and pale rusty. All the feathers are tipped, edged, and barred with the lighter colors, the back appearing for the most part in subterminal spots or blotches. The primaries (which are but just sprouting) are black, broadly tipped with pale rusty. Under parts clothed thickly with fluffy, whitish down, beneath which on the breast and sides, true feathers of a dull white barred with dark brown are beginning to appear. (From a specimen in the cabinet of Mr. N. C. Brown, taken at Deering, Me., June 29, 1875.) It seems probable that young of this species—and perhaps of the whole family, like those of the *Tetraonia* and some others—pass through a state of plumage previous to the usual primal one. The specimen above described is, strictly speaking, in process of transition between the two, and still retains patches of the soft whitish down which must have constituted its entire covering at an earlier period." (BREWSTER, Bul. Nutt. Orn. Club, 1876, p. 178.)

Popularly confounded with the Whip-poor-will, the Nighthawk is a bird of very different appearance and quite distinct habits. Instead of being strictly nocturnal it is hardly crepuscular, but may often be seen flying about in broad daylight, though toward evening is their favorite time of activity. Says Dr. Brewer:

"Ordinarily laying its eggs upon the bare ground, usually in some open situation, the Night Hawk has become accustomed to nest on

the flat roof-tops of houses in cities, even in such densely populated places as New York and Brooklyn. (See Louis A. Zerega, in *Forest and Stream*, Vol. XVIII., No. 24, p. 467.)

***Chordeiles virginianus henryi* (Cass.)**

WESTERN NIGHTHAWK.

Chordeiles henryi Cass. Illustr. B. Cal. Tex. &c. 1855, 239.—BAIRD, B. N. Am. 1853, 153, 922; ed. 1860 17; Cat. N. Am. B. 1859, No. 115.

Chordeiles popetue var. *henryi* ALLEN.—B. B. & R. Hist. N. Am. B. II, 1874, 404, pl. 46, fig. 4.

Chordeiles popetue henryi RIDGW. Nom. N. Am. B. 1881, No. 337a.—2d Check List, 1882, No. 400.

Chordeiles virginianus var. *henryi* COUES, Key, 1872, 181.—Check List, 1871, No. 267a.

HAB. Western United States (except Pacific coast north of San Francisco?).

SUBSP. CHAR. Similar to true *C. virginianus*, but much paler and grayer, often with much buffy mottling.

This form, which is of occasional occurrence in Illinois, is in habits and notes a counterpart of the ordinary eastern bird. In the desert regions of the Great Basin the writer found it to be a common summer resident.

ORDER PICI.—THE WOODPECKERS, ETC.

CHARACTERS. Bill straight, pointed or chisel-shaped at tip; tongue barbed at point and extensile; feet zygodactyle; tail-feathers 12, but outer pair rudimentary and concealed.

FAMILY PICIDÆ.—THE WOODPECKERS.

"CHAR. Outer toe turned backwards permanently, not versatile laterally, the basal portion of the tongue capable of great protrusion.

"The preceding characters combined appear to express the essential character of the *Picidæ*. In addition, it may be stated that the tongue itself is quite small, flat, and short, acute and horny, usually armed along the edges with decurved hooks. The horns of the hyoid apparatus are generally very long, and curve round the back of the skull frequently to the base of the bill, playing in a sheath, when the tongue is thrown forward out of the mouth to transfix an insect.

"There are twelve tail-feathers, of which the outer is, however, very small and rudimentary (lying concealed between the outer and adjacent feathers), so that only ten are usually counted. The tail is nearly even, or cuneate, never forked, the shafts very rigid in the true Woodpeckers; soft in *Picumninæ* and *Jynginæ*. The outer primary is generally very short, or spurious, but not wanting. The bill is chisel- or wedge-shaped, with sharp angles and ridges and straight culmen; sometimes the culmen is a little curved, in which case it is smoother, and without ridges. The tarsi in the North American forms are covered with large plates anteriorly, posteriorly with small ones, usually more or less polygonal. The claws are compressed, much curved, very strong and acute.

"The *Picidæ* are found all over the world with the exception of Madagascar, Australia, the Moluccas, and Polynesia. America is well provided with them, more than half of the described species belonging to the New World.

"The subfamilies of the *Picidæ* may be most easily distinguished as follows, although other characters could readily be given:

Picinæ. Tail-feathers pointed, and lanceolate at end; the shafts very rigid, thickened, and elastic.

Picumninæ. Tail soft and short, about half the length of wing; the feathers without stiffened shafts, rather narrow, linear, and rounded at end.

Jynginæ. Tail soft and rather long, about three fourths the length of wing; the feathers broad, and obtusely rounded at end.

"Of these subfamilies the *Picinae* alone occur north to Mexico. The *Jynginae*, to which the well-known Wryneck of England (*Jynx torquilla*) belongs, are exclusively Old World; the *Picumninae* belong principally to the tropical regions of America, although a few species occur in Africa and India." (*Hist. N. Am. B.*)

The North American *Picinae* may for convenience of identification be divided into the following groups:—

Dryobateæ. Bill variable in length; the outlines above and below nearly straight; the ends truncated; a prominent ridge on the side of the mandible springing from the middle of the base, or a little below, and running out either on the commissure, or extending parallel to and a little above it, to the end, sometimes obliterated or confluent with the lateral bevel of the bill. Nostrils considerably overhung by the lateral ridge, more or less linear, and concealed by thick bushy tufts of feathers at the base of the bill. Outer posterior toe generally longer than the anterior.

Melanerpeæ. Bill rather long; the outlines, that of the culmen especially, decidedly curved. The lateral ridge much nearest the culmen, and, though quite distinct at the base, disappearing before coming to the lower edge of the mandible; not overhanging the nostrils, which are broadly oval, rounded anteriorly, and not concealed by the bristly feathers at the base. Outer pair of toes nearly equal; the anterior rather longer.

Colapteæ. Bill rather long, much depressed, and the upper outline much curved to the acutely pointed (not truncate) tip. The commissure considerably curved. Bill without any ridges. The nostrils broadly oval and much exposed. Anterior outer toe longest.

The preceding diagnoses will serve to distinguish the three groups sufficiently for our present purposes; the bill being strongest in the *Dryobateæ* and best fitted for cutting into trees by its more perfect wedge-shape, with strengthening ridges, as well as by the lateral beveling of both mandibles, which are nearly equal in thickness at the base, and with their outlines nearly straight. The lateral ridge is prominent, extending to the edge or end of the bill, and overhangs the nostrils, which are narrow and hidden. The *Melanerpeæ* and the *Colapteæ* have the upper mandible more curved (the commissure likewise), the lower mandible smaller and weaker, the bill with little or no lateral beveling. The nostrils are broadly oval and exposed. In the former, however, there is a distinct lateral ridge visible for a short distance from the base of the bill; while in the other there is no ridge at all, and the mandible is greatly curved.

In all the species of North American Woodpeckers, there is more or less red on the head in the male, and frequently in the female.

The eggs of all are lustrous polished white, without any markings, and laid in holes in trees, upon a bed of chips, no material being carried in for the construction of the nest.

According to Mr. Brewster (Bull. Nutt. Orn. Club, October, 1878, p. 179, foot-note), "the young of most, if not all, of the Woodpeckers, regularly moult the wing- and tail-feathers with the rest of the first plumage. No exceptions to this rule occur among large series of the common North American species examined, and it may probably be found to hold good among all, excepting, perhaps, some highly specialized groups. Another peculiar feature in the early development of the species most thoroughly investigated, and one which is perhaps common to all the members of this family, is the fact that a certain portion of the females in first plumage possess to a greater or less degree the adornments which in more advanced stages are peculiar to the males alone and which are lost with the first moult. Marked examples of this are afforded by young females of *Colaptes auratus*, *Picus pubescens*, and others of which detailed descriptions are given in the text."

The genera with which we have to deal in this work may be distinguished as follows:

Section Dryobateæ.

- A.** Posterior outer toe longer than the anterior one. (Fourth toe longer than third.)
- a.* Lateral ridge starting above the middle of the base of the bill, and extending to the tip.
 1. *Campephilus*. Lateral ridge above the middle of the lateral profile of the bill when opposite the end of the nostrils, which are ovate, and rounded anteriorly. Bill much depressed, very long; gonys very long. Posterior outer toe considerably longer than the anterior. Primaries long, attenuated towards the tip. Spurious quill nearly half the second. Shafts of four middle tail-feathers remarkably stout, of equal size, and abruptly very much larger than the others; two middle tail-feathers narrower towards base than towards end.* A pointed occipital crest.
 2. *Dryobates*. Lateral ridge in the middle of the lateral profile opposite the end of nostrils, which are ovate and sharp-pointed anteriorly. Bill moderate, nearly as broad as high. Outer hind toe moderately longer than the outer fore toe. Primaries broad to the tip, and rounded. Spurious primary not one third the second quill.
 3. *Picoides*. Lateral ridge below the middle of the profile, opposite the end of the ovate acute nostrils, which it greatly overhangs. Bill greatly depressed; lower mandible deeper than the upper. Inner hind toe wanting, leaving only three toes. Tufts of nasal bristles very full and long.
 - b.* Lateral ridge starting below the middle of the base of the bill, and running as a distinct ridge into the edge of the commissure at about its middle; the terminal half of the mandible rounded on the sides, although the truncate tip is distinctly beveled laterally.
 4. *Sphyrapicus*. Nostrils considerably overhung by the lateral ridge, very small, linear. Gonys as long as the culmen from the nostrils. Tips of tail-feathers elongated and linear, not cuneate. Wings very long; exposed portion of spurious primary about one fourth that of second quill.

*A character common to all the members of the genus, and distinguishing them from the species of every other; this peculiar form of the middle tail-feathers is caused principally by a folding of the webs downward, almost against each other. The under surface of the shafts have a very deep groove their whole length, which is seen in no other genus.

B. Posterior outer toe considerably shorter than the anterior outer one. (Fourth toe shorter than third.)

5. *Ceophloeus*. Bill depressed. Lateral ridge above the middle of the lateral profile near the base. Nostrils elliptical, wide, and rounded anteriorly. Tail almost as in *Sphyrapicus*. A pointed occipital crest, as in *Campephilus*.

Section Melanerpes.

6. *Melanerpes*.

Back and wings banded transversely with black and white. Crown more or less red; rest of head with under parts grayish, and with red or yellow tinge on the middle of the abdomen. Rump white. (Subgenus *Centurus*.)

Upper parts uniform black, without bands, with or without a white rump; variable beneath, but without transverse bands. (Subgenus *Melanerpes*.)

Section Colaptes.

7. *Colaptes*. Above brown, barred with black; a white spot on rump; lower parts, posterior to black crescent on chest, vinaceous white or pale vinaceous, handsomely spotted with black; shafts of quills and tail-feathers bright yellow or red.

GENUS CAMPEPHILUS GRAY.

Campephilus GRAY, List of Genera, 1840, 54. Type, *Picus principalis* LINN.

"GEN. CHAR. Bill considerably longer than the head, much depressed, or broader than high at the base, becoming somewhat compressed near the middle and gradually beveled off at the tip. Culmen very slightly curved, gonys as concave, the curve scarcely appreciable; commissure straight. Culmen with a parallel ridge on each side, starting a little above the centre of the basal outline of the bill, the ridge projecting outwards and downwards, and a slight concavity between it and the acute ridge of the culmen. Gonys considerably more than half the commissure. Nostrils oval, below the lateral ridge near the base of the bill; concealed by the bristly feathers directed forward. Similar feathers are seen at the sides of the lower jaw and on the chin.

"Feet large; outer hind toe much longest; claw of inner fore toe reaching to middle of outer fore claw; inner hind toe scarcely more than half the outer one; its claw reaching as far as the base of the inner anterior claw, considerably more than half the outer anterior toe. Tarsus rather shorter than the inner fore toe. Tail long, cuneate; shafts of the four middle feathers abruptly much larger than the others, and with a deep groove running continuously along their under surface; webs of the two middle feathers deflected, almost against each other, so that the feathers appear narrower at the base than terminally. Wings long and pointed, the third, fourth, and fifth quills longest; sixth secondary longest, leaving six 'tertials,' instead of three or four as usual; primaries long, attenuated. Color continuous black, relieved by white patches. Head with a pointed occipital crest." (*Hist. N. Am. B*)

This genus embraces the largest of known Woodpeckers. The largest species is *C. imperialis* GOULD, of western Mexico, which considerably exceeds our Ivory-billed Woodpecker (*C. principalis*) in size, having the bill three and a half inches long (measured from the forehead) and the wing more than thirteen inches.

Campephilus principalis (Linn.)

IVORY-BILLED WOODPECKER.

Popular synonyms. White-billed Woodpecker; White-billed Logcock.

Picus principalis LINN S. N. ed. 12, 1766, 173.—WILS. Am. Orn. iv, 1811, 20, pl. 39, fig. 6.

—AUP. Orn. Biog. i, 1832, 341; v, 1839, 525, pl. 66; B. Am. iv, 1842, 214, pl. 256.

Campephilus principalis GRAY, 1840.—BAIRD, B. N. Am. 1858, 83; Cat. N. Am. B. 1859, No. 72.—COUES, Key, 1872, 192; Check List, 1874, No. 233; 2d ed. 1882, No. 431.—B. B. & R. Hist. N. Am. B. ii, 1874, 496, pl. 49, figs. 1, 2.—RIDGW. Nom. N. Am. B. 1881, No. 359.

HAB. South Atlantic and Gulf States and lower Mississippi Valley, north to North Carolina, southern Illinois, and southeastern Missouri, west to eastern Texas. (According to AUDUBON, formerly occurred accidentally as far north as Maryland, and regularly in Kentucky, southern Indiana and up the Mississippi to the mouth of the Missouri.)

"SP. CHAR. Fourth and fifth quills equal; third a little shorter. Bill horn-white. Body entirely of a glossy blue-black (glossed with green below); a white stripe beginning half an inch posterior to the commissure, and passing down the sides of the neck, and extending down each side of the back. Under wing-coverts, and the entire exposed portion of the secondary quills, with ends of the inner primaries, bristles, and a short stripe at the base of the bill, white. Crest scarlet, upper surface black. Length, 21.00; wing, 10.00. *Female* similar, without any red on the head, and with two spots of white on the end of the outer tail-feather.

"In the male the entire crown (with its elongated feathers) is black. The scarlet commences just above the middle of the eye, and, passing backwards a short distance, widens behind and bends down as far as the level of the under edge of the lower jaw. The feathers which spring from the back of the head are much elongated above; considerably longer than those of the crown. In the specimens before us the black feathers of the crest do not reach as far back as the scarlet." (*Hist. N. Am. B.*)

There are no recent records of the occurrence of the Ivory-billed Woodpecker in Illinois. There can be little doubt, however, that it is still to be found in the heavily timbered counties of the extreme southern portion of the State. Audubon states that in descending the Ohio river he met with it near the confluence of that stream with the Mississippi, and that he observed it along the latter as far up as the mouth of the Missouri. The writer has a distinct recollection of what he believes to have been this species in White county, some forty miles south of Mount Carmel, but never observed it in the vicinity of the latter place.

The flight of this magnificent Woodpecker is said to be totally different from that of the Pileated, and on this account, when on the wing it may readily be distinguished from that species. Its manner of flight is similar to that of the Hairy Woodpecker, or by deep undulations, while that of the Pileated is an unsteady somewhat laborious flapping in a straight horizontal line. "The transit from tree to tree," as Audubon observes, "is performed by a single sweep, as if the bird had been swung in a curved line from one to the other." Its notes are also very different, sounding like *pait*,

pait, pait, uttered in "a clear, loud, and rather plaintive tone," heard "sometimes to the distance of half a mile, and resembling the false high note of a clarionet."

GENUS DRYOBATES BOIE.

Picus (part), LINN. S. N. ed. 10, i, 1753, 112; ed. 12, i, 1766, 173, and of most authors.

Dendrocopos KOCH, Syst. Baier Zoöl. i, 1816, 72. Type, by elimination, *Picus major* LINN. (Nec VIEILL. Analyse, 1816, p. 45.)

Dryobates BOIE, Isis, 1826, 977. Type, *Picus pubescens* LINN.

"GEN. CHAR. Bill equal to the head, or a little longer; the lateral ridges conspicuous, starting about the middle of the base of the bill; the basal elongated oval nostrils nearest the commissure; the ridges of the culmen and gonyx acute, and very nearly straight, or slightly convex towards the tip; the bill but little broader than high at the base, becoming compressed considerably before the middle. Feet much as in *Campephilus*; the outer posterior toe longest; the outer anterior about intermediate between it and the inner anterior; the inner posterior reaching to the base of the claw of the inner anterior. Tarsus about equal to the inner anterior toe; shorter than the two other long toes. Wings rather long, reaching to the middle of the tail, rather rounded; the fourth and fifth quills longest; the quills rather broad and rounded." (*Hist. N. Am. B.*)

The species found in eastern North America may be distinguished as follows:

- A. Back longitudinally striped with white.
 1. *D. villosus*. Outer tail-feathers without black bars. Wing, 4.25 or more.
 2. *D. pubescens*. Outer tail-feathers barred with black. Wing less than 4.25.
- B. Back transversely barred with white.
 3. *D. borealis*. Auriculars entirely white; sides spotted with black. Wing, 4.60-4.75.

Dryobates villosus (Linn.)

HAIRY WOODPECKER.

Popular synonyms. Big Sapsucker; Big Guinea-Woodpecker.

Picus villosus LINN. S. N. ed. 12, i, 1806, 175.—WILS. Am. Orn. i, 1808, 150, pl. 9.—NUTT. Man. i, 1832, 575.—AUD. Orn. Biog. v, 1839, 164, pl. 416; Synop. 1839, 179; B. Am. iv, 1842, 244, pl. 262.—BAIRD, B. N. Am. 1858, 84 (var. *medius*); Cat. N. Am. B. 1859, No. 74.—COUES, Key, 1872, 193; Check List, 1874, No. 298; 2d ed. 1882, No. 438; B. N. W. 1874, 279 (a. *villosus*, b. *medius*).—RIDGW. Nom. N. Am. B. 1881, No. 360.

Picus villosus var. *medius* BAIRD, B. N. Am. 1858, 84.

Picus villosus var. *villosus* B. B. & R. Hist. N. Am. B. ii, 1874, 503, pl. 49, figs. 3, 4, 5.

Picus martinæ AUD. Orn. Biog. v, 1839, 81, pl. 417; Synop. 1839, 178; B. Am. iv, 1842, 240, pl. 260 (= young!).

Picus rubricapillus NUTT. Man. 2d ed. i, 1840, 685 (= *martinæ*).

HAB. Eastern United States (except Gulf States) and more southern British Provinces. (Replaced in Gulf States by *D. villosus auduboni*, in northern British America by *D. villosus leucomelas*, and in western North America by *D. villosus harrisi*.)

SP. CHAR. Above black, with a white band down the middle of the back. All the middle and larger wing-coverts and all the quills with conspicuous spots of white. Two white

stripes on each side of the head; the upper scarcely confluent behind, the lower not at all so; two black stripes confluent with the black of the nape. Beneath white. Three outer tail-feathers with the exposed portions white. Length, 8.00-11.00; wing, 4.00-5.00; bill, 1.00-1.25. *Male*, with a nuchal scarlet crescent (wanting in the female) covering the white, generally continuous, but often interrupted in the middle. Immature birds of either sex with more or less of the whole crown spotted with red or yellow, or both, sometimes the red almost continuous.

Specimens from Mount Carmel measure, before skinning, as follows:

Adult males. Total length, 8.75-9.00; extent, 14.75-15.25.

Adult females. Total length, 8.50-9.00; extent, 14.00-15.00.

Bill varying from slate-color to bluish horn-color; iris brown, varying to claret-purple; feet ashy blue, olive-gray or slate-color.

This common and well-known species is a permanent resident throughout the State. It is most numerous, however, in winter though by no means rare, as a rule, during summer. It possesses no characteristics worthy of special mention here.

The large northern form, *D. villosus leucomelas*, may occur as a winter visitant to the extreme northern portion of the State.

In an article condemning the Yellow-bellied Woodpecker (*Sphyrapicus varius*) as a scourge to fruit and shade trees, published in the *Prairie Farmer* for Jan.—, 1862, Dr. P. R. Hoy, of Racine, Wisconsin, has the following good words to say for the present species:

"This species is not migratory but remains the entire year with us. Cheerful and industrious, he is always on the lookout for those worms that burrow in the substance of the wood, or under the bark of trees—the larva of the Capricorn Beetles, the Buprestidæ, etc. He is an expert at auscultation and percussion, and he is not indebted to Laennec for the art either. As he explores suspicious localities with gentle taps, he quickly detects the evidences of unsoundness, and is not slow to learn the cause. *Worms* is his hobby—soon he chips an opening, and with his long, slender tongue, armed with a barbed lance point, a capital tool, he soon extracts the cause of the evil. While engaged "worming," he continues to utter his cheerful *Plick, Plick*, in a major key, as if conscious that he is engaged in a good cause, and not ashamed to own it. You can always tell where he is. A few ears of corn is about all the pay he takes for his valuable work. Protect him, he is our friend. May that gun ever hang fire that is directed against the Hairy Woodpecker."

Dryobates pubescens (Linn.)**DOWNY WOODPECKER.**

Popular synonyms. Little Sapsucker; Little Guinea-Woodpecker.

Picus pubescens LINN. S. N. ed. 12, i, 1766, 175.—WILS. Am. Orn. i, 1808, 153, pl. 9, fig. 4.—NUTT. Man. i, 1832, 576.—AUD. Orn. Biog. ii, 1834, 81; v, 1839, 539, pl. 112; Synop. 1839, 180; B. Am. iv, 249, pl. 263.—BAIRD, B. N. Am. 1858, 89; Cat. N. Am. B. 1859, No. 76.—COUES, Key, 1872, 194; Check List, 1874, No. 299; 2d ed. 1882, No. 440; B. N. W. 1874, 282 (a. *pubescens*).—B. B. & R. Hist. N. Am. B. ii, 1874, 509, pl. 49, figs. 6, 7.—RIDGW. Nom. N. Am. B. 1881, No. 361.

Picus (Dendrocopus) pubescens SW. F. B.-A. ii, 1831, 307.

Picus (Dendrocopus) medianus SW. F. B.-A. ii, 1831, 308 (New Jersey).

Picus medianus NUTT. Man. ii, 1834, 601.

Picus (Dendrocopus) meridionalis SW. F. B.-A. ii, 1831, 308 (Georgia).

HAB. Eastern and northern North America, resident throughout; northwest to Alaska, including nearly the whole of that country, or from the Yukon Valley to Kodiak. (Replaced in the western United States and British Columbia by *D. pubescens gairdneri*.)

"Sp. CHAR. A miniature of *P. villosus*. Above black, with a white band down the back. Two white stripes on the side of the head; the lower of opposite sides always separated behind, the upper sometimes confluent on the nape. Two stripes of black on the side of the head, the lower not running into the forehead. Beneath white; all the middle and greater coverts and all the quills with white spots, the larger coverts with two series each; tertiaries or inner secondaries all banded with white. Two outer tail-feathers white, with two bands of black at end; third white at tip and externally; crissum sometimes spotted with black. Length about 6.25; wing, 3.75. *Male* with red terminating the white feathers on the nape. *Young* with whole top of head red." (*Hist. N. Am. B.*)

This, the smallest of our woodpeckers, is almost a perfect miniature of *D. villosus*, and is of very similar habits. It is rather more numerous, however, especially in summer.

GENUS PICOIDES LACÉPÈDE.

Picoides LACÉP. Mem. Inst. 1801, 509. Type *Picus tridactylus* LINN.

"GEN. CHAR. Bill about as long as the head, very much depressed at the base; the outlines nearly straight, the lateral ridge at its base much nearer the commissure than the culmen, so as to bring the large, rather linear nostrils close to the edge of the commissure. The gonys very long, equal to the distance from the nostrils to the tip of the bill. Feet with only three toes, the first or inner hinder one being wanting; the outer lateral a little longer than the inner, but slightly exceeded by the hind toe, which is about equal to the tarsus. Wings very long, reaching beyond the middle of the tail, the tip of the first quill between those of sixth and seventh. Color black above, with a broad patch of yellow on the crown*; white beneath, transversely banded on the sides. Quills, but not wing-coverts, with round spots. Lateral tail-feathers white, without bands on exposed portion, except in European species.

"The peculiarities of this genus consist in the absence of the inner hind toe and the great depression of the bill."

The two species represented in eastern North America, differ as follows:

* Except in female.

COMMON CHARACTERS. The American species of *Picoides* agree in being black above and white beneath; the crown with a yellow patch in the male; a white stripe behind the eye and another from the loreal region beneath the eye; the quills (but not the coverts) spotted with white; the sides banded transversely with black. Four middle tail-feathers wholly black.

1. *P. arcticus*. Dorsal region without white markings; no supraloral white stripe or streak, nor nuchal band of white. Sides of the breast continuously black. *Male*. Crown with a patch of yellow, varying from lemon, though gamboge, to orange, and not surrounded by any whitish markings or suffusion. *Female*. Crown lustrous black, without any yellow, and destitute of white streaks or other markings. Wing, 4.85-5.25; tail, 3.60-3.85; culmen, 1.40-1.55.
2. *P. americanus*. Back barred or otherwise varied with white; a white supraloral streak and nuchal band. *Male*. Crown with a patch of yellow, surrounded or margined with more or less of a whitish suffusion. *Female*. Crown streaked, speckled, or suffused with whitish. Wing, 4.40-5.10; tail, 3.40-3.70; culmen, 1.10-1.25.

Picoides arcticus (Swains.)

ARCTIC THREE-TOED WOODPECKERS.

Popular synonym. Black-backed Three-toed Woodpecker.

Picus tridactylus "LINN." AUD. Orn. Biog. ii, 1834, 193; v, 1839, 538, pl. 132.—NUTT. Man. i, 1832, 578. (Not of LINN.)

Picus (Apternus) arcticus SW. F. B.-A. ii, 1831, 313, pl. 57.

Picus arcticus AUD. Synop. 1839, 182; B. Am. iv, 1842, 266, pl. 268.—NUTT. Man. 2d ed. i, 1840, 691.

Picoides arcticus GRAY, 1845.—BAIRD, B. N. Am. 1853, 93; Cat. N. Am. B. 1859, No. 82. —COUES, Key, 1872, 194; Check List, 1874, No. 300; 2d ed. 1882, No. 443; B. N. W. 1874, 284.—B. B. & R. Hist. N. Am. B. ii, 1874, 530, pl. 50, fig. 1.—RIDGW. Nom. N. Am. B. 1881, No. 367.

HAB. Northern North America, south, in winter, to northern border of United States (Massachusetts, Pennsylvania, northern Illinois, etc.); in the West, breeding south (to 40° at least) in higher mountain ranges.

"SP. CHAR. Above entirely uniform glossy bluish black; a square patch on the middle of the crown saffron-yellow, and a few white spots on the outer edges of both webs of the primary and secondary quills. Beneath white, on the sides of the whole body, axillars, and inner wing-coverts banded transversely with black. Crissum white, with a few spots anteriorly. A narrow concealed white line from the eye a short distance backwards, and a white stripe from the extreme forehead (meeting anteriorly) under the eye, and down the sides of the neck, bordered below by a narrow stripe of black. Bristly feathers of the base of the bill brown; sometimes a few gray feathers intermixed. Exposed portion of two outer tail-feathers (first and second) white; the third obliquely white at end, tipped with black. Sometimes these feathers with a narrow black tip." (*Hist. N. Am. B.*)

This species differs from the other American three-toed Woodpeckers chiefly in having the back entirely black. The white line from the eye is usually almost imperceptible, if not wanting entirely. Specimens vary but little; one from Slave Lake has a longer bill than usual, and the top of head more orange. The size of the crown patch varies; sometimes the frontal whitish is inappreciable. None of the females before me have any white spots in the black of head, as is always the case with those of *P. americanus*.

This northern bird is a rare winter visitor to the extreme northern portion of the State. According to Mr. Nelson (page 115 of his catalogue), "a specimen was shot from a telegraph pole in Chicago a few years ago by Dr. Velie." Mr. Nelson also states that it is a common species in northern Wisconsin, "and before the pines along the lake were destroyed, was probably a regular winter visitant."

GENUS *SPHYRAPICUS* BAIRD.

Sphyrapicus BAIRD, Birds N. Am. 1858, 101. Type, *Picus varius* LINN.

"GEN. CHAR. Bill as in *Picus*, but the lateral ridge, which is very prominent, running out distinctly to the commissure at about the middle, beyond which the bill is rounded without any angles at all. The culmen and gonys are very nearly straight, but slightly convex, the bill tapering rapidly to a point; the lateral outline concave to very near the slightly beveled tip. Outer pair of toes longest; the hinder exterior rather longest; the inner posterior toe very short, less than the inner anterior without its claw. Wings long and pointed; the third, excluding the spurious, longest. Tail-feathers very broad, abruptly acuminate, with a very long linear tip. Tongue scarcely extensible." (*Hist. N. Am. B.*)

This is a very strongly marked genus, of which but a single species occurs east of the Rocky Mountains. In the West, however, occur three others, one of which (*S. thyroideus*) is perhaps the most beautiful of North American Woodpeckers, while it is further remarkable on account of the great difference in color between the sexes—a difference probably wholly exceptional in this family.

Sphyrapicus varius (Linn.)

YELLOW-BELLIED SAPSUCKER.

Popular synonyms. Red-throated Sapsucker; Squealing or Whining Sapsucker.

Picus varius LINN. S. N. ed. 12, i, 1766, 176.—WILS. Am. Orn. i, 1808, 147, pl. 9, fig. 2.—NUTT. Man. i, 1832, 574.—AUD. Orn. Biog. ii, 1834, 519; v, 1839, 537, pl. 190; Synop. 1839, 182; B. Am. iv, 1842, 263, pl. 267.

Sphyrapicus varius BAIRD, B. N. Am. 1858, 103; Cat. N. Am. B. 1859, No. 85.—COUES, Key, 1872, 195; Check List, 1874, No. 302; 2d ed. 1882, No. 446; B. N. W. 1874, 285. (*avarius*.)
—B. B. & R. Hist. N. Am. B. ii, 1874, 539, pl. 51, figs. 1, 2.—RIDGW. Nom. N. Am. B. 1881, No. 369.

HAB. Eastern North America, north to at least 61°, in the interior, breeding from northern United States northward. (Replaced in the Rocky Mountain district by *S. nuchalis*, and along Pacific coast by *S. rupestris*.)

"**SP. CHAR.** Third quill longest; second a little shorter; first between fourth and fifth, considerably shorter. General color above black, much variegated with white. Feathers of the back and rump brownish white, spotted with black. Crown crimson, bordered by black on the side of the head and nape. A streak from above the eye, and a broad stripe from the bristles of the bill, passing below the eye, and into the yellowish of the belly, enclosing a black postocular one, and a stripe along the edges of the wing-coverts, white. A triangular broad patch of scarlet on the chin and throat, bordered on each side by black stripes from the lower mandible, which meet behind and extend into a large quadrate spot on the breast. Rest of under parts yellowish white, or yellow, streaked and banded on the sides with black. Inner web of inner tail-feather white, spotted with black. Outer feathers black, edged and spotted with white. Quills spotted with white. Length, 8.25; wing, about 4.75; tail, 3.30. *Female* with the red of the throat replaced by white. Immature bird without black on the breast, or red on top of the head, as in every intermediate stage to the perfect plumage." (*Hist. N. Am. B.*)

This bird, the true "Sapsucker," is a winter resident in most portions of Illinois, and though it may perhaps breed sparingly in the extreme northern portion, I can find no record of its doing so.

GENUS **CEOPHLEUS** CABANIS.

Hylatomus BAIRD, Birds N. Am. 1858, 107. Type *Picus pileatus* LINN. (*Nec Hylotoma* LATREILLE, 1804.

Ceophleus CABANIS, Jour. für Orn. 1862, 176. Same type.

"**GEN. CHAR.** Bill a little longer than the head; considerably depressed, or broader than high at the base; shaped much as in *Campephilus*, except shorter, and without the bristly feathers directed forwards at the base of the lower jaw. Gonys about half the length of the commissure. Tarsus shorter than any toe, except the inner posterior. Outer posterior toe shorter than the outer anterior, and a little longer than the inner anterior. Inner posterior very short, not half the outer anterior; about half the inner anterior one. Tail long, graduated; the long feathers much incurved at the tip. Wing longer than the tail, reaching to the middle of the exposed surface of tail; considerably graduated, though pointed; the fourth and fifth quills longest. Color uniform black. Head with pointed occipital crest. A stripe from nasal tufts beneath the eye and down side of neck, throat, lining of wing, and basal portion of under surface of quills, white; some species with the abdomen and sides barred black and brownish white; others with a white scapular stripe in addition. Male with whole crown and crest and maxillary patch red; female with only the crest red." (*Hist. N. Am. B.*)

This genus is similar in general appearance and size to *Campephilus*, but differs essentially in many respects; the differences being, however, mostly those which distinguish all other Woodpeckers from the species of *Campephilus*, which is unique in the peculiar structure of the tail-feathers and in other characters, as detailed under the head of that genus on page 374.

The single species belonging to North America has numerous representatives within the tropics.

Ceophloeus pileatus (Linn.)**PILEATED WOODPECKER.**

Popular synonyms. Woodcock; Black Woodcock; Logcock; Black Logcock.

Picus pileatus LINN. S. N. ed. 12, i, 1766, 173.—WILS. Am. Orn. iv, 1811, 27, pl. 29, fig. 2.—NUTT. Man. i, 1:32, 537.—AUD. Orn. Biog. ii, 1834, 74; v, 1839, 533, pl. 111.—B. Am. iv, 1842, 226, pl. 257.

Hylatomus pileatus BAIRD, B. N. Am. 1858, 197; Cat. N. Am. B. 1859, No. 90.—COUES, Key, 1872, 192; Check List, 1874, No. 294; 2d ed. 1882, No. 432; B. N. W. 1874, 278; B. B. & R. Hist. N. Am. B. ii, 1874, 550, pl. 56, figs. 5, 6.—RIDGW. Nom. N. Am. B. 1881, No. 317.
Ceophloeus pileatus CABANIS, Jour. für Orn. 1862, 176.

HAB. Whole of heavily timbered portions of North America, south to Florida, Texas, New Mexico, and California; north to Nelson river and Fort Laird, or even to between latitude 62° and 63°, in the interior.

"SP. CHAR. Fourth and fifth quills equal and longest; third intermediate between sixth and seventh. Bill blue-black; more horn-color beneath. General color of body, wings, and tail dull greenish black. A narrow white streak from just above the eye to the occiput; a wider one from the nostril feathers (inclusive), under the eye and along the side of the head and neck; sides of the breast (concealed by the wings), axillaries, and under wing-coverts, and concealed bases of all the quills, with chin and beneath the head, white, tinged with sulphur-yellow. Entire crown from the base of the bill to a well-developed occipital crest, as also a patch on the ramus of the lower jaw, scarlet-red. A few faint white crescents on the sides of the body and on the abdomen. Longer primaries generally tipped with white. Length, about 13.00; wing, 9.50. *Female* without the red on the cheek, and the anterior half of that on the top of the head replaced by black." (*Hist. N. Am. B.*)

This noble bird, inferior only to the magnificent Ivory-bill (*Campephilus principalis*) among North American woodpeckers, occurs in wooded districts throughout the State, being still abundant in the more heavily timbered portions. It is very active and noisy, and therefore as well as on account of its large size and striking colors, is a conspicuous bird. Its blows upon dead trees sound more like those of a woodman's axe than the hammerings of other woodpeckers, while its spread of wing and general bulk may be compared to that of a crow; and, although a far less powerful bird than the Ivory-bill, it is nevertheless sure to attract the attention, or even excite the enthusiasm, of the ornithologist.

"The loud hammering of this large and vigorous bird on the sonorous dried trees, compared with which the tapping of the smaller species is but a weak noise, very soon becomes familiar to the ear of the woodman; and may designate the bird at a distance. The old adage, 'a workman is known by his chips,' certainly affirms much for the industry of this bird. In his search for insects for which he attacks the dead and dying trees, he will denude great spaces of the trunk and larger branches in a short time, heaping up the chips and strips of bark on the ground in an as-

tonishing manner. Very useful, indeed, must this bird be in preserving our primeval forests from the ravages of insects. Whether one notes his strong, undulating flight, his elastic bounding and springing along the trunks of the trees, the effective chiseling of his powerful bill, or his sonorous cackling, one is particularly impressed with the spirit and immense energy of the bird." (LANGILLE.)

GENUS **MELANERPES** SWAINSON.

SUBGENUS **Melanerpes**.

Melanerpes SWAINS. F. B.-A. ii. 1831, 316. Type, *Picus erythrocephalus* LINN.

Melanerpes erythrocephalus (Linn.)

RED-HEADED WOODPECKER.

Picus erythrocephalus LINN. S. N. ed. 12, i. 1766, 174.—WILS. Am. Orn. i. 1808, 142, pl. 9, fig. 1.—NUTT. Man. i. 1832, 569.—AUD. Orn. Biog. i. 1832, 141, pl. 27; Synop. 1839, 184; B. Am. iv. 1842, 274, pl. 271.

Melanerpes erythrocephalus SWAINS. F. B.-A. ii. 1831, 316.—BAIRD, B. N. Am. 1858, 113; Cat. N. Am. B. 1859, No. 94.—COUES, Key, 1872, 196; Check List, 1874, No. 309; 2d ed. 1882, No. 453; B. N. W. 1874, 290.—B. B. & R. Hist. N. Am. B. ii. 1874, 564, pl. 54, fig. 4.—RIDGW. Nom. N. Am. B. 1881, 375.

HAB. Eastern United States and British Provinces, west to eastern base of Rocky Mountains, south to Florida and Texas; breeds throughout; irregularly or locally migratory. Rare in most parts of New England.

SP. CHAR. *Adult.* Entire head, neck, and jugulum uniform rich crimson, bordered below against white of breast, by a more or less distinct black line. Secondaries, rump, upper tail-coverts, and lower parts white, the abdomen usually more or less tinged with reddish. Back and scapulars glossy blue-black; wings, except secondaries, and tail deep black. Bill bluish white, darkening into plumbeous terminally; iris brown (varying from umber to chestnut); feet greenish gray. *Young.* Head, neck, and jugulum brownish gray, streaked with dusky. Back mixed black and grayish; secondaries with one or more black bands near ends.

Total length (fresh specimens), 9.25-9.75; extent, 17.00-17.75; wing, (skins), 5.30-5.70; tail, 3.60-3.75.

This splendid Woodpecker, to which belongs the honor of having been the first bird to excite the latent enthusiasm of Alexander Wilson, and determine him to be an ornithologist, is found throughout the State. In the more heavily wooded portions it is decidedly the most numerous member of the family. As a rule, it is, in the vicinity of Mount Carmel at least, and presumably in similar localities throughout the southern portion of the State, not only a permanent resident but is even more abundant in winter than in summer. Sometimes (probably very rarely), however, it makes a complete migration which is very difficult to account for.

SUBGENUS *Centurus* SWAINSON.

Centurus SWAINSON. Classif. B. ii, 1837, 310. Type, *Picus carolinus* LINN.

GEN. CHAR. Bill about as long as the head, or a little longer, the length from the tip to the nostril about equal to the tarsus, or a little greater; decidedly compressed anteriorly, but depressed at the extreme base; the lateral groove distinct for half the length of the bill; culmen decidedly but gently curved from the base; gonys nearly straight, and about half as long as the culmen. Nostrils broad, elliptical, situated about midway between the culmen and tomium, and only partly concealed by the frontal tufts. Anterior outer toe a little longer than the posterior, the inner anterior toe decidedly shorter, and the inner hind toe only about half its length. Wings long and broad, third to fifth primaries longest, the first equal to the sixth to the ninth. Tail about two thirds as long as the wing, graduated, the feathers (except the outer) rather abruptly attenuated at ends. Colors, banded with black and white, or yellow, above, with more or less of the pileum scarlet in the male; below plain, the abdomen tinged with red, orange, or yellow in most species.

While only one species of *Centurus* occurs in eastern North America, two others are found along our southwestern border: *C. aurifrons* in southern Texas, and *C. uropygialis* in southern New Mexico and Arizona. Other species belong to Mexico, Central America, Cuba, Hayti, and Jamaica.

Melanerpes carolinus (Linn.)

RED-BELLIED WOODPECKER.

Popular synonyms. Carolina Woodpecker; Checkered Woodpecker; Wood Chuck; Zebra Woodpecker.

Picus carolinus LINN. S. N. ed. 10, i, 1758, 113; ed. 12, i, 1766, 174.—WILS. Am. Orn. i, 1808, 115, pl. 7, fig. 2.—NUTT. Man. i, 1832, 572.—AUD. Orn. Biog. v, 1839, 169, pl. 415; Synop. 1839, 183; B. Am. iv, 1842, 270, pl. 270.

Centurus carolinus BP. 1838.—BAIRD, B. N. Am. 1858, 109; Cat. N. Am. B. 1859, No. 91.—COUES, Key, 1872, 196; Check List, 1874, No. 306; 2d ed. 1882, No. 450; B. N. W. 1874, 289.—B. B. & R. Hist. N. Am. B. ii, 1874, 289.—RIDGW. Nom. N. Am. B. 1881, No. 372.

Melanerpes (Centurus) carolinus RIDGW. Ann. Lye. N. Y. Jan. 1874, 378.

HAB. Eastern United States, rare northward, but occurring accidentally as far as Massachusetts; west, sparingly, to eastern base of Rocky Mountains, and south to Florida and eastern Texas (except Rio Grande Valley).

SP. CHAR. *Adult male*. Entire pileum and nape bright scarlet, deepest on the crown, the forehead lighter, or more pinkish (sometimes approaching reddish white); rest of the head and neck with lower parts, pale buff-grayish, lighter on the chin and throat; middle of the abdomen pinkish red, the remainder of the lower parts sometimes tinged with the same, especially on the breast and cheeks; tibiae and crissum white, relieved by rather sparse hastate marks of black. Back scapulars and upper part of rump broadly and distinctly barred with black and white, the two colors in about equal proportion, or the black bars rather the wider; wings black, the coverts and secondaries barred with pure white; primaries tipped with white, narrowly margined with the same beyond their emarginations and blotched with white near the base; upper tail-coverts and lower part of rump white, relieved by rather sparse irregularly hastate spots or bars of black, the coverts sometimes

nearly immaculate. Tail black; the inner webs of the *intermedia* chiefly white, crossed with a greater or less number of broad black bars, or transverse spots, the outer webs with a longitudinal stripe of white on the basal half; outer rectrices broadly barred at the ends with dull white, and with spots of the same indenting the outer web; next pair of feathers tipped with yellowish white. *Adult female*. Similar to the male, but red of the crown replaced by deep ash-gray, lighter anteriorly; lower parts tinged with red only on the abdomen, and cheeks with little if any red tinge. *Young female*. Whole pileum dull brownish gray, transversely mottled with darker; nape dull light fulvous red; back and scapulars barred with grayish white and grayish dusky, much less sharply than in the adult; abdomen tinged with dull buff, but without red. Total length (fresh specimens), .910% inches; extent, 15%–17%; wing (skins), 4.85–5.40; tail, 3.50–3.90; culmen, 1.00–1.20; tarsus, .80–.90. Bill (in life), slate-black, the basal portion of gonys sometimes mixed with light ash; iris varying from ferruginous to bright scarlet; naked orbital spaces olivaceous ash; legs and feet olivaceous. In the *young*, iris brown.

Among adult males of this species, the principal variation is in the amount of red tinge on the lower parts. In most examples from the Atlantic States and in many from the Mississippi Valley, the reddish is entirely confined to the middle of the abdomen, while on the head there is a mere tinge of it on the lores and cheeks. Many western specimens, however, had the breast more or less strongly tinged with purplish pink, while two now before me (No. 34317, Kansas City, Mo., May 14, 1864, and another from Mount Carmel, Ill., May 28, 1878), have not only the lores and cheeks, but the whole chin and upper throat also, bright salmon-color, or saffron-pink. In these highly-colored specimens the forehead is a bright saffron-red, while the Kansas City specimen above alluded to has the red on the abdomen very intense, approaching a saffron-scarlet. An adult female from southern Illinois (Mount Carmel, October 18, 1879), has the occiput red, like the nape, while there are several red feathers in the middle of the crown.

Next to the Red-head (*Melanerpes erythrocephalus*) this is probably the most abundant Woodpecker in southern Illinois. It is also, perhaps with the same exception, the most conspicuous and, instead of being shy and retiring, as has been recorded of it by writers, it is almost constantly to be seen in orchards and the vicinity of houses, as well as in the depths of the forest. It is very fond of ripe apples, and where very abundant thus makes itself somewhat of a nuisance. Besides raiding the orchards it is also in winter a frequent visitor to the corn crib, to which it easily gains ingress between the logs and thus obtains an abundant supply of food. It

is rather a noisy bird. its emphatic and not disagreeable notes of *chuck, chuck, chuck*, or *chow, chow, chow*, being frequently repeated.

In contest with the Red-headed Woodpecker it is, so far as I have observed, invariably vanquished.

In the northern portion of the state it is comparatively rare, and also said to be only a summer resident. Mr. H. K. Coale informs me that he saw a pair in Lincoln Park, Chicago, in July, and that they were evidently breeding there, as he saw one of them come out of a hole in the dead top of an oak tree.

GENUS COLAPTES SWAINSON.

Colaptes SWAINSON, Zool. Jour. iii, Dec. 1827, 353. Type *Cuculus auratus* LINN.

"GEN. CHAR. Bill slender, depressed at the base, then compressed. Culmen much curved, gonys straight; both with acute ridges, and coming to quite a sharp point with the commissure at the end; the bill consequently not truncate at the end. No ridges on the bill. Nostrils basal, median, oval and exposed. Gonys very short; about half the culmen. Feet large, the anterior outer toe considerably longer than the posterior. Tail long, exceeding the secondaries; the feathers suddenly acuminate, with elongated points." (*Hist. N. Am. B.*)

Excluding the *C. chrysoides*, Malh., which is confined to the extreme southwestern portion of the Union, (Arizona and southern California), the two remaining North American species of *Colaptes* may be distinguished as follows:

COMMON CHARACTERS. Head and neck ashy or brown, unvaried except by a black or red malar patch in the male, and sometimes, in both sexes, a scarlet occipital patch. Back and wings brown, banded transversely with black; rump and upper tail-coverts white. Beneath whitish, with circular black spots, and bands on crissum; a black pectoral crescent. Shafts and under surfaces of quills and tail-feathers either yellow or red.

1. *C. auratus*. Under surface and shafts of wings and tail rich golden yellow. A red nuchal crescent. Throat pinkish, top of head ashy. Male with the "moustaches" glossy black; HAB. Eastern North America.
2. *C. mexicanus*. Under surface and shafts of wings and tail pinkish red. No red nuchal crescent. Throat ash, top of head brownish. Male with the "moustaches" bright red. HAB. Western North America.

Distinct as these two forms appear to be, they are yet connected by a series of intermediate specimens which have been a great puzzle to ornithologists. This intermediate series is further considered under the head of *C. hybridus* on page 387.

Colaptes auratus (Linn.)

FLICKER.

Popular synonyms. Yellow-hammer; Yellow-shafted Flicker; Wake-up; High-holder, or High-hole; Clape; Golden-winged Woodpecker; Pigeon Woodpecker.

Cuculus auratus LINN. S. N. ed. 10, i, 1758, 112.

Picus auratus LINN. S. N. ed. 12, i, 1766, 174.—WILS. Am. Orn. i, 1808, 45, pl. 3, fig. 1.—NUTT. Man. i, 1832, 561.—AUD. Orn. Biog. i, 1832, 191; v, 1839, 540, pl. 37; Synop. 1839, 184; B. Am. iv, 1842, 282, pl. 273.

Colaptes auratus SW. 1827.—BAIRD, B. N. Am. 1858, 118; Cat. N. Am. B. 1859, No. 97.—COUES, Key, 1872, 197; Check List, 1874, No. 312; 2d ed. 1882, No. 457; B. N. W. 1874, 292.—B. B. & R. Hist. N. Am. B. ii, 1874, 575, pl. 55, figs. 1, 2.—RIDGW. Nom. N. Am. B. 1881, No. 378.

HAB. Eastern and northern North America, including all wooded parts of Alaska, south to Sitka; south to Florida and eastern Texas, west to edge of Great Plains; casual in California.

"SP. CHAR. Shafts and under surfaces of wing- and tail-feathers gamboge-yellow. Male with a black patch on each side of the cheek. A red crescent on the nape. Throat and stripe beneath the eye pale lilac-brown. Back glossed with olivaceous green. Female without the black cheek-patch.

"ADDITIONAL CHARACTERS. A crescentic patch on the breast and rounded spots on the belly black. Back and wing-coverts with interrupted transverse bands of black. Neck above and on the sides ashy. Beneath pale pinkish brown, tinged with yellow on the abdomen, each feather with a heart-shaped spot of black near the end. Rump white. Length, 12.50; wing, 6.00." (*Hist. N. Am. B.*)

Wing, 5.50-6.40; tail, 4.50-4.90.

Specimens from Mt. Carmel measured, before skinning, as follows:

Adult males: Total length, 12.15-12.75; extent, 19.60-20.75.

Adult females: Total length, 12.00-12.25; extent, 19.25-19.75.

To so common and well-known a bird as the "Yellow-hammer" or Flicker, we need here give but a brief notice. It is universally distributed throughout the State, and is everywhere a permanent resident.

Colaptes hybridus (Baird.)

HYBRID FLICKER.

Colaptes ayresii AUD. B. Am. vii, 1843, 348, pl. 494.

Colaptes hybridus BAIRD, B. N. Am. 1858, 122; Cat. N. Am. B. 1859, No. 98a.

Colaptes auratus hybridus RIDGW. Nom. N. Am. B. 1881, No. 378a, 11.

Colaptes aurato-mexicanus SUNDEV. Consp. Av. Picin. 1866, 72.

HAB. Western United States, but chiefly the region of the upper Missouri, and thence across the northern border and south into California.

CHAR. Intermediate between *C. auratus* and *C. mexicanus*, the character of the two species being mixed in various degrees, in different specimens. Typical combinations are as follows:

a. With the shafts, etc., orange, or intermediate in tint between the yellow of *auratus* and the red of *mexicanus*.

b. With the pure yellow shafts, etc., of *auratus*, combined with red "moustaches" of *mexicanus*.

c. Similar to *mexicanus*, but having either the red occipital crescent or pinkish throat of *auratus*.

d. Similar to *mexicanus*, but having the red "moustaches" mixed with black feathers.

e. Similar to *auratus*, but with red or orange-colored feathers mixed in wing or tail; or like *mexicanus*, but with yellow feathers in wing or tail.

ORDER COCCYGES.—THE CUCKOOS, ETC.

CHARACTERS. Bill variable in form, but never chisel-shaped at tip, the culmen usually more or less curved; tongue not extensile nor barbed at tip; feet zygodactyle, or else the middle and outer toes connected for at least half their length.

FAMILY **ALCEDINIDÆ**.—THE KINGFISHERS.

"CHAR. Head large, bill long, strong, straight, and sub-pyramidal, usually longer than the head. Tongue very small. Wings short; legs small, the outer and middle toes united to their middle. Toes with the usual number of joints (2, 3, 4, 5).

"The gape of the bill in the Kingfishers is large, reaching to beneath the eyes. The third primary is generally longest; the first decidedly shorter; the secondaries vary from twelve to fifteen in number, all nearly equal. The secondaries cover at least three quarters of the wing. The tail is short, the feathers twelve in number; they are rather narrow, the outer usually shorter. The lower part of the tibia is bare, leaving the joint and the tarsus uncovered. The tarsus is covered anteriorly with plates; behind, it is shagreen-like or granulated. The hind toe is connected with the inner, so as to form with it and the others a regular sole, which extends unbroken beneath the middle and outer as far as the latter are united. The inner toe is much shorter than the outer. The claws are sharp; the middle expanded on its inner edge, but not pectinated." (*Hist. N. Am. B.*)

GENUS **CERYLE** BOIE.

Ceryle BOIE, Isis, 1828, 316. Type, *Alcedo rudis* FINN.

"GEN. CHAR. Bill long, straight, and strong, the culmen slightly advancing on the forehead and sloping to the acute tip; the sides much compressed; the lateral margins rather dilated at the base, and straight to the tip; the gonys long and ascending. Tail rather long and broad. Tarsi short and stout.

"This genus is distinguished from typical *Alcedo* (confined to the Old World) by the longer tail, an indented groove on each side the culmen, inner toe much longer than the hinder instead of equal, etc." (*Hist. N. Am. B.*)

Only one species occurs in eastern North America, except in southern Texas, where the *C. cabanisi*, of tropical distribution, is found.

Ceryle alcyon (Linn.)**BELTED KINGFISHER.**

Popular synonym. Kingfisher.

Alcedo alcyon LINN. S. N. ed. 12, i, 1766, 180.—WILS. Am. Orn. iii, 1811, 59.—AUD. Orn. Biog. i, 1831, 394, pl. 77; Synop. 1839, 173; B. Am. iv, 1842, 205, pl. 255.—NUTT. Man. i, 1832, 594.

Ceryle alcyon BOIE, 1828.—BAIRD, B. N. Am. 1858, 158; Cat. N. Am. B. 1859, No. 117.—COUES, Key, 1872, 188; Check List, 1874, No. 286; 2d ed. 1882, No. 423; B. N. W. 1874, 372.—B. B. & R. Hist. N. Am. B. ii, 1874, 392, pl. 45, fig. 6.—RIDGW. Nom. N. Am. B. 1881, No. 382.

HAB. Whole of North America, south (in winter only ?) to Isthmus of Panama and throughout West Indies.

SP. CHAR. Bluish plumbeous above, white beneath; nape with a white collar and breast with a plumbeous or brownish band. Head with a double erectile crest of narrow feathers. *Adult male.* Sides white, tinged with plumbeous. *Adult female.* Sides and a more or less complete band across belly, rufous. *Young.* Similar to the adult, but the male with the breast-band and color of sides tinged with rusty.

Total length (fresh specimens), 13.50-14.50; extent, 22.50-24.00; wing (skins), 9.10-9.50; tail, 3.80-4.30.

The Belted Kingfisher is to be found wherever there are streams, ponds, or lakes, affording a sufficient supply of its food. It is chiefly a summer resident, but has been frequently observed during mild winters in the southern counties.

"The Kingfisher," says Dr. Brewer,* "is an eminently unsocial species. It is never found other than in solitary pairs, and these are very rarely seen together. They feed almost entirely upon fish, which they capture by plunging into the water, and which they always swallow whole on emerging from their bath. Undigested portions of their food, such as scales, bones, etc., they have the power of occasionally ejecting from their stomachs. They may usually be noticed by the sides of streams, mill ponds and lakes stationed on some convenient position that enables them to overlook a deep place suitable for their purpose, and they rarely make a plunge without accomplishing their object."

"They nest in deep holes excavated by themselves in the sides of streams, ponds or cliffs, not always in the immediate vicinity of water. These excavations are often near their accustomed fishing grounds, in some neighboring bank, usually not many feet from the ground, always in dry gravel, and sufficiently high to be in no danger of inundation. They make their burrow with great industry and rapidity, relieving one another from time to time, and working incessantly until the result is satisfactorily accomplished. When dig-

*Hist. N. Am. B., Vol. II, pp. 394, 395.

ging through a soft fine sand bank, their progress is surprising, sometimes making a deep excavation in a single night. The pages of "The American Naturalist" contain several animated controversies as to the depth, the shape, and the equipment of these passages. The result of the evidence thus given seems to be that the holes the Kingfishers make are not less than four nor more than fifteen feet in length; that some are perfectly straight, while some, just before their termination, turn to the right, and others to the left; and that all have, at or near the terminus, an enlarged space in which the eggs are deposited. Here the eggs are usually laid on the bare sand, there being very rarely, if ever, any attempt to construct a nest. The use of hay, dry grass, and feathers, spoken of by the older writers, does not appear to be confirmed by more recent testimony. Yet it is quite possible that in certain situations, the use of dry materials may be resorted to, to protect the eggs from a too damp soil."

FAMILY CUCULIDÆ.—THE CUCKOOS.

CHAR. Bill compressed, usually more or less lengthened and with decurved culmen. Rictal bristles few or none. Nostrils exposed, no nasal tufts. Tail long and soft, of eight to twelve feathers. Toes in pairs, deeply cleft or not united, the outer anterior toe usually versatile, but directed rather laterally than backward.

"The *Cuculidæ* form a strongly marked group of birds, easily distinguished among the *Zygodactyli* by the characters given above. The outer toe is versatile, but in the American forms is more lateral than posterior, in the skin standing sideways, or even anterior, more frequently than behind." (*Hist. N. Am. B.*)

Of the several subfamilies which have been recognized by authors, only three belong to eastern North America, and of these two are mere stragglers from other regions. They may be characterized as follows:

- Coccyzinæ.** Face covered with feathers; bill elongated, more or less cylindrical, straight or curved. Tail of ten feathers.
 Bill about the length of the head, or not longer; curved. Loral feathers soft. Legs weak, tarsus shorter than the toes. Arboreal.....*Coccyzus*.
 Bill longer than the head; straight. Loral feathers stiff, bristly. Tarsi much longer than the toes. Terrestrial... ..*Geococcyx*.
Crotophaginæ. Face naked; bill much compressed, with a sharp crest.
 Tail of eight feathers. Bill shorter than and nearly as high as the head. *Crotophaga*.

Only *Coccyzus* has a claim to special notice in this connection, *Crotophaga* and *Geococcyx* being "extralimital" so far as this work is concerned, although the latter approaches rather near, having been obtained in the western portion of the Indian Territory (Kiowa Agency) and in Southwestern Kansas.

GENUS COCCYZUS VIEILLOT.

Coccyzus VIEILLOT, Analyse, 1816, 23. Type, *Cuculus americanus* LINN.

GEN. CHAR. Head without crest; feathers about base of bill soft; nearly as long as the head, decurved, slender, and attenuated towards the end. Nostrils linear. Wings lengthened, reaching the middle of the tail; the tertials short. Tail of ten graduated feathers. Feet weak; tarsi shorter than the middle toe.

"The species of *Coccyzus* are readily distinguished from those of *Geococcyx* by their arboreal habits, confining themselves mainly to trees, instead of living habitually on the ground. The plumage is soft, fine and compact.

"The American Cuckoos differ from the European (*Cuculus*) by having lengthened naked tarsi, instead of very short feathered ones. The nostrils, too, are elongated instead of rounded. The habits of the two are entirely different, the American species rearing their young, instead of laying eggs in the nests of other birds, like the European Cuckoo and the American Cowbird (*Molothrus pecoris*)."

(*Hist. N. Am. B.*)

The two species of *Coccyzus* which are entitled to notice here may be distinguished by the following characters:

1. *C. americanus*. Tail feathers (except middle pair) black with broad white tips. Inner webs of primaries mostly rufous. Mandible and bare orbits yellow.
2. *C. erythrophthalmus*. Tail feathers grayish brown, with very narrow tips of dull whitish. Inner webs of primaries rufous only in young. Mandible bluish (blackish in dried skins), bare orbits deep red in the adult (yellow in young).

Coccyzus americanus (Linn.)

YELLOW-BILLED CUCKOO.

Popular synonyms. Rain Crow; Wood Pigeon; Cow-cow.

Cuculus americanus LINN S. N. ed. 12, i, 1766, 170.

Coccyzus americanus BP. 1823.—NUTT. Man. i, 1832, 551.—AUD. Orn. Biog. i, 1832, 18; v, 1839, 520, pl. 2; Synop. 1839, 187; B. Am. iv, 1842, 233, pl. 275.—COUES, Key, 1872, 190; Check List, 1874, No. 291; 2d ed. 1882, No. 429; B. N. W. 1874, 275.—RIDGW. Nom. N. Am. B 1881, No. 387.

Coccyzus americanus CAB. 1856.—BAIRD, B. N. Am. 1858, 76; Cat. N. Am. B, 1859, No. 69.—B. B. & R. Hist. N. Am. B. ii, 1874, 477, pl. 48, fig. 4.

Cuculus carolinensis WILS. Am. Orn. iv, 1811, 13, pl. 28.

HAB. United States in general, especially the Eastern Province (irregularly distributed in the Western), north to British Provinces; in winter, south through Mexico and Central America as far as Costa Rica, and also many of the West India Islands. Accidental in Europe.

"SP. CHAR. Upper mandible and tip of lower, black; rest of lower mandible and cutting edges of the upper, yellow. Upper parts of a metallic greenish olive, slightly tinged with ash towards the bill; beneath white. Tail feathers (except the median, which are like the back) black, tipped with white for about an inch on the outer feathers, the external one with the outer edge almost entirely white. Quills orange-cinnamon; the terminal portion and a gloss on the outer webs olive; iris brown. Length, 12.00; wing, 5.95; tail, 6.35." (*Hist. N. Am. B.*)

There is considerable variation in the amount of rufous in the quills; sometimes this shows very distinctly externally, sometimes it is entirely replaced by the bronzed olive of the back. A greater amount of the rufous seems to characterize the more southern and

Jamaica specimens, which also are smaller; northern specimens, however, show similar variations. In the immature birds the under surface of the tail-feathers is gray, not black, so that the contrast with the white tips is very indistinct, as in *erythrophthalmus*, in which, however, these light tips are much narrower, while the bill is entirely black.

This bird, familiarly known as the Rain Crow, Wood Pigeon, or Cow-cow, is a summer resident of all portions of the State, though more abundant southward, its range being to some extent complementary to that of the black-billed species, which is more common northward.

While habitually building its own nest, and caring for its young, this species as well as *C. erythrophthalmus* occasionally not only impose on one another, but also, though more rarely, upon other birds. Of this fact there is much indisputable evidence on record. It is also a well-known fact that in nests of both these species it is not an uncommon thing to find not only eggs in different stages of incubation but also young and freshly laid eggs in the same nest. Colonel S. T. Walker, of Milton, Florida, writes to Professor Baird that he has found young birds in the nest just ready to fly, others half fledged, and some just hatched, and at the same time one or two fresh eggs. He is not sure whether other Cuckoos lay in the same nest or whether the same bird continues to lay while setting. From what he has seen, however, he is inclined to believe that the latter is the case, and that "the old bird utilizes the warmth of the young first hatched to continue the incubation of eggs subsequently laid."

Regarding this point it may be stated that the parasitic habit of the European Cuckoo (*Cuculus canorus*) is supposed to result from the very slow development of the eggs in the oviduct, rendering it practically impossible for themselves to attend to the incubation of their eggs; and it may be suggested that the circumstances to which Col. Walker alludes, and which have been noted by other observers, arise from the same cause. Furthermore since, as stated above, it is known also that both the American Cuckoos occasionally drop

an egg in the nest of the other, or even in other birds' nests, it is not at all improbable that they may eventually become completely parasitic, like their European cousins.

Coccyzus erythrophthalmus (Wils.)

BLACK-BILLED CUCKOO.

Cuculus erythrophthalmus WILS. Am. Orn. iv, 1811, 16, pl. 27, fig. 2.

Coccyzus erythrophthalmus BP. 1825.—AUD. Orn. Biog. i, 1832, 170, pl. 32; Synop. 1839, 187; B. Am. iv, 1842, 300, pl. 276.—COUES, Key, 1872, 199; Check List, 1872, No. 290; 2d ed. 1882, No. 423; B. N. W. 1874, 274.—RIDGW. Nom. N. Am. B. 1881, No. 388.

Coccyzus erythrophthalmus CAB. 1856.—BAIRD, B. N. Am. 1858, 77; Cat. N. Am. B. 1859, No. 70.—B. B. & R. Hist. N. Am. B. ii, 1874, 484, pl. 48, fig. 5.

Coccyzus dominicus "LINN." NUTT. Man. i, 1832, 556 (*nec* LINN.)

HAB. Eastern North America, north to Labrador, west to Rocky Mountains; south in winter, through eastern Mexico and Central America to the Amazon Valley; Cuba (and Florida?) in winter. Accidental in Europe.

"SP. CHAR. Bill entirely black. Upper parts generally of a metallic greenish olive, ashy towards the base of the bill; beneath pure white, with a brownish yellow tinge on the throat. Inner webs of the quills tinged with cinnamon. Under surface of all the tail-feathers hoary ash-gray. All, except the central on either side, suffused with darker to the short, bluish white, and not well-defined tip. A naked red skin round the eye. Length, about 12.00; wing, 5.00; tail, 6.50." (*Hist. N. Am. B.*)

"*First plumage: female.* Above lustrous plumbeous ashy, feathers upon the crown, nape, and anterior part of the back, narrowly tipped with pale ashy; those of the interscapular region and rump, together with the scapulars and upper tail-coverts, more broadly so with ashy white. Outer edges of quills light rufous. Beneath delicate pearl-gray, lightest on the abdomen, slightly tinged with pale brownish yellow on the throat and breast. From a specimen in my collection shot in Lincoln, Mass., June 17, 1871. Autumnal specimens (probably only the young birds) differ from spring adults in having the naked skin around the eye yellow instead of red." (BREWSTER, Bull. Nutt. Orn. Club, Oct. 1878, p. 178.)

Popularly confounded with the Yellow-billed Cuckoo, this species closely resembles it in habits and in general appearance. They may not frequently be found in the same localities, as evidence of which it may be stated that the writer once found a nest of each in adjoining trees in an apple orchard, near Mt. Carmel. In the vicinity of the place just mentioned it is far rarer than the *C. americanus*, occurring in about the proportion of one to twenty-five of the latter; but to the northward it increases in numbers until in the northern portion of the State, it is perhaps more common than *C. americanus*.

ORDER PSITTACI.—THE PARROTS, ETC.

CHAR. Bill deep and strongly hooked, the upper mandible movable, as well as the lower, and furnished at base with a distinct cere, or else the latter densely covered with short feathers; feet zygodactyle.

FAMILY PSITTACIDÆ.—THE PARROTS.

"CHAR. Bill greatly hooked; the maxilla movable and with cere at the base. Nostrils in the base of the bill. Feet scansorial, covered with granulated scales." (*Hist. N. Am. B.*)

GENUS CONURUS KUHLM.

Conurus KUHLM., *Consp. Psittac.* 1820, 4. Type *Psittacus carolinensis* LINN.

"GEN. CHAR. Tail long, conical, and pointed; bill stout; cheeks feathered, but in some species leaving a naked ring round the eyes; cere feathered to the base of the bill.

"The preceding diagnosis, though not very full, will serve to indicate the essential characteristics of the genus among the Middle American forms with long pointed tails, the most prominent feature consisting in the densely feathered, not naked, cheeks. But one species belongs to the United States, though three others are found in Mexico, and many more in South and Central America. A few species occur in the West Indies." (*Hist. N. Am. B.*)

Conurus carolinensis (Linn.)

CAROLINA PAROQUET.

Popular synonym. Illinois Paroquet.

Psittacus carolinensis LINN. S. N. ed. 12, i, 1766, 141.—WILS. Am. Orn. iii, 1811, 89, pl. 24, fig. 1.—NUTT. Man. i, 1832, 545.—AUD. Orn. Biog. v, 1832, 135, pl. 26.

Conurus carolinensis LESS. 1831.—BAIRD, B. N. Am. 1858, 67; Cat. N. Am. B. 1859, No. 63.—COUES, Key, 1872, 199; Check List, 1874, No. 315; 2d ed. 1882, No. 460; B. N. W. 1874, 296.—B. B. & R. Hist. N. Am. B. ii, 1874, 587, pl. 56, figs. 1, 2.—RIDGW. Nom. N. Am. B. 1881, No. 392.

Centurus (error *carolinensis*) AUD. Synop. 1839, 189; B. Am. iv, 1842, 386, pl. 278.

HAB. Now confined to limited portions of Florida and the Gulf States, and portions of the lower Mississippi Valley, north to Arkansas and Indian Territory—possibly to southern Mississippi and extreme southern portion of Illinois. Formerly abundant throughout the Mississippi Valley, east to the Alleghanies, north (extreme limits) to the Great Lakes, west to Nebraska and even eastern Colorado.

SP. CHAR. *Adult.* Rich grass-green, varying to emerald in some lights, the lower parts lighter and more yellowish green than the upper; tertials, tips of greater coverts, and basal portion of primaries greenish yellow; primaries dark blue at tips. Forehead, lores and cheeks, rich orange-red, or orange-chrome; rest of head, with upper part of neck

pure gamboge-yellow. Edge of wing tinged with orange. Bill creamy white; eyelids whitish; iris blackish brown; feet whitish. *Young*. Similar, but no yellow on head or neck, which are green, the forehead only, or forehead and lores, dull orange-red.

Wing, 7.20-7.60; tail, 6.40-7.10.

The avian-fauna of Illinois has lost no finer or more interesting member than the present species, which is probably now everywhere extinct within our borders, though fifty years ago it was of more or less common occurrence throughout the State. The National Museum possesses a fine adult example from Illinois (Cat. No. 12272), another from Michigan, and several from the Platte River, in Nebraska; now, however, it appears to be quite exterminated except in isolated and rapidly contracting areas in Florida, and thence westward to the lower Mississippi Valley. Its present northern limit in the interior is uncertain, but so far as known is the eastern part of the Indian Territory and portions of Arkansas. In the opinion of the best judges, twenty-five years hence the species will exist only in museums and in literature.

An outline of its former distribution is thus given by Dr. Brewer, in *History of North American Birds*, Vol. II., p. 580:

"In descending the Ohio in the month of February, Wilson met the first flock of Parakeets at the mouth of the Little Scioto. He was informed by an old inhabitant of Marietta that they were sometimes, though rarely, seen there. He afterwards observed flocks of them at the mouth of the Great and Little Miami, and in the neighborhood of the numerous creeks which discharge themselves into the Ohio. At Big Bone Lick, near the mouth of the Kentucky River, he met them in great numbers. They came screaming through the woods, about an hour after sunrise, to drink the salt water, of which, he says, they are remarkably fond.

"Audubon, writing in 1842, speaks of the Parakeets as then very rapidly decreasing in number. In some regions, where twenty-five years before they had been very plentiful, at that time scarcely any were to be seen. At one period, he adds, they could be procured as far up the tributary waters of the Ohio as the Great Kanawha, the Scioto, the head of the Miami, the mouth of the Maumee at its junction with Lake Erie, and sometimes as far northeast as Lake Ontario. At the time of his writing very few were to be found higher than Cincinnati, and he estimated that along the Mississippi there were not half the number that had existed there fifteen years before."

Were it not for its piercingly shrill screeching notes, this species would be a great favorite as a cage bird, on account of its great beauty and extreme docility; but its distracting, "ear-splitting" notes render it extremely undesirable as a pet. The writer has owned several, and therefore had the experience which warrants the above statement.

The Carolina Parakeet breeds very readily in captivity if proper arrangements are made for the purpose.

ORDER ACCIPITRES.—THE BIRDS OF PREY.

SUBORDER STRIGES.—NOCTURNAL RAPTORES (OWLS).

CHAR. Eyes directed forward, and surrounded by a radiating system of feathers, which is bounded, except anteriorly, by a ruff of stiff, compact-webbed, differently formed, and somewhat recurved feathers; loreal feathers antrorse, long and dense. Plumage very soft, lax, of a fine downy texture, the feathers destitute of an after-shaft. Oil-gland without the usual circle of feathers. Outer web of first primary with the points of the barbs recurved. Feathers on the sides of the forehead frequently elongated into ear-like tufts. Tarsus usually, and toes frequently, feathered. Ear-opening usually very large, sometimes provided with a lappet. Oesophagus destitute of a dilated crop; cæca large. Maxillo-palatines thick and spongy, and encroaching upon the intervening valley; basipterygoid processes always present. Outer toe reversible; posterior toe only about half as long as the outer. Posterior margin of the sternum doubly indented; clavicle weak and nearly cylindrical, about equal in length to the sternum; anterior process of the coracoid projected forward so as to meet the clavicle, beneath the basal process of the scapula.

Eggs variable in shape, usually nearly spherical, always immaculate white.

The above diagnosis is sufficient to distinguish this order from the most nearly related group, the *Accipitres*, or Diurnal Raptores. There are also many important anatomical peculiarities, which it is unnecessary to mention here. The Order comprises two well-marked families, which may be distinguished as follows:

- Strigidæ.** Inner toe equal to the middle in length; inner edge of middle claw pectinated. First quill longer than the third, all the quills with their inner web entire, or without emarginations. Tail emarginated. Feathers of the posterior face of the tarsus recurved, or pointed upwards.
- Bubonidæ.** Inner toe decidedly shorter than the middle one; inner edge of middle claw not pectinated. First quill shorter than the third; one or more of the outer quills with inner webs emarginated. Tail more or less rounded. Feathers of posterior face of tarsus (when present) pointed downwards.

FAMILY STRIGIDÆ.—THE BARN OWLS.

CHAR. Inner toe equal to the middle in length; inner edge of middle claw pectinated. First quill longer than the third; all the quills with their inner web entire, or without emargination. Tail emarginated. Feathers of the posterior face of the tarsus recurved, or pointed upwards.

The family *Strigide* includes, so far as known, but two genera, *Strix* and *Phodilus*. The former is cosmopolitan, having species in nearly all parts of the world, with the exception of the colder regions. *Phodilus* is restricted to a limited portion of the Indian region, and need not be further mentioned here.

GENUS *STRIX* LINNÆUS.

Strix LINN. S. N. ed. 10, i, 1758, 92. Type, *Strix flammea* LINN.
Aluco GERINI, Orn. Met. Dig. i, 1767, 88.

GEN. CHAR. Size medium. No ear-tufts; facial ruff entirely continuous, very conspicuous. Wing very long, the first or second quill longest, and all without emargination. Tail short, emarginated. Bill elongated, compressed, regularly curved; top of the cere nearly equal to the culmen, straight, and somewhat depressed. Nostril open, oval, nearly horizontal. Eyes very small. Tarsus nearly twice as long as the middle toe, densely clothed with soft short feathers, those on the posterior face inclined upwards; toes scantily bristled; claws extremely sharp and long, the middle one with its inner edge pectinated. Ear-conch nearly as long as the height of the head, with an anterior operculum which does not extend its full length; the two ears symmetrical?

Strix pratincola Bonap.

AMERICAN BARN OWL.

Popular synonyms. Monkey Owl; Monkey-faced Owl.

Strix flammea "LINN." WILS. Am. Orn. vi, 1812, 57, pl. 50, fig. 2.—NUTT. Man. f, 1833, 139.—AUD. Orn. Biog. ii, 1834, 403; v, 1839, 388, pl. 171.

Strix pratincola BP. Comp. Dist. 1838, 7.—CASS. in Baird's B. N. Am. 1858, 47.—BAIRD, Cat. N. Am. B. 1859, No. 47.

Strix flammea var. *pratincola* B. B. & R. Hist. N. Am. B. iii, 1874, 13.

Aluco flammeus pratincola COUES, 2d Check List, 1882, No. 461.

Strix americana AUD. Synop. 1899, 25; B. Am. i, 1840, 127, pl. 34.

Strix flammea americana SCHLEG, 1862.

Strix flammea var. *americana* COUES, Key, 1872, 201; Check List, 1873, No. 316.

Strix flammea d. americana COUES, B. N. W. 1874, 293.

Aluco flammeus americanus RIDGW. NOM. N. AM. B. 1881, No. 394.

HAB. United States generally, but more rare northward, and wanting in unwooded districts; south through Mexico; north, occasionally, to Canada.

SP. CHAR. *Usua plumage.* Ground-color of the upper parts bright orange-ochraceous; this overlaid in cloudings, on nearly the whole of the surface, with a delicate mottling of blackish and white, the mottling continuous on the back and inner scapulars, and on the ends of the primaries more faint, while along their edges it is more in the form of fine dusky dots, thickly sprinkled. Each feather of the mottled surface (excepting the secondaries and primaries) has a median dash of black, enclosing a roundish or cordate spot of white near the end of the feather; on the secondaries and primaries the mottling is condensed into indistinct transverse bands, which are about four in number on the former and five on the latter; primary coverts deeper orange-rufous than the other portions, the mottling principally at their ends. Tail orange-ochraceous, finely mottled—most densely terminally—with dusky, fading into whitish at the tip, and crossed by about five distinct bands of mottled dusky. Face white, tinged with wine-red; an ante-orbital spot of dark claret-brown, this narrowly surrounding the eye; facial circle, from forehead down to the ears (behind which it is white for an inch or so) soft orange-ochraceous, similar to the ground-color of the upper parts, the lower half (from ears across the throat) deeper ochraceous, the tips of the feathers blackish, the latter sometimes predominating. Lower parts snowy white, but this more or less overlaid with a tinge of fine orange-ochraceous, lighter than the tint of the upper parts; and, excepting on the jugulum, anal region, and crissum, with numerous minute but distinct specks of black; under surface of wings delicate yellowish white, the lining sparsely sprinkled with black dots; inner webs of primaries with transverse bars of mottled dusky near their ends.

Extreme plumages. Darkest (Male, No. 6,884, Tejon Valley, Cal.; Dr. Heermann): There is no white whatever on the plumage, the lower parts being continuous light ochraceous; the tibiae have numerous round spots of blackish. Lightest (No. 6,885, same locality): Face and entire lower parts immaculate snow-white; facial circle white, with the tips of the feathers orange; the secondaries, primaries, and tail show no bars, their surface being uniformly and finely mottled.

Measurements. (Male, No. 6,884, Tejon Valley, Cal.; Dr. Heermann): Wing, 13.00; tail, 5.70; culmen, .90; tarsus, 2.50; middle toe, 1.25. Wing formula, 2, 1-3. Among the very numerous specimens in the collection, there is not one marked female. The extremes of a large series are as follows: Wing, 12.50-14.00; tail, 5.70-7.50; culmen, .90-1.10; tarsus, 2.55-3.00.

The American Barn Owl, although generally distributed and in some localities common or even abundant, is by no means well known to the general public. It is the bird which has figured so often in the newspapers as the rare, remarkable, or anomalous "Monkey-faced Owl"—"only two specimens known," "Barnum offered five hundred dollars for this one," etc., with variations, according to circumstances. It is rather a southern bird, being rarely, if ever, found north of the Great Lakes, while it is probably common nowhere north of the parallel of 40°, except perhaps in California.

Regarding its habits, it may be said that it is decidedly nocturnal, like many other owls, and that it has a special predilection for church towers and abandoned or little frequented buildings of,

various kinds. It is a most useful bird, destroying large numbers of rats and mice, which are its principal food, and seldom, if ever, molesting poultry, even domestic pigeons often nesting in its company without fear of molestation. Of this there is plenty of evidence on record, as for example the following, by Mr. R. T. Shepherd, of Monroe, Ohio, published in the *Ornithologist and Oölogist* for October, 1884, p. 124.

"The Barn Owl is undoubtedly a very useful bird to the farmer, having as it has, an almost unlimited penchant for rats and mice. Two or three pairs of these birds would in the course of a year destroy many hundreds of these pests that infest our barns and grain sheds. I quote the following from Mr. Dury's article on the Barn Owl in the Cincinnati Natural History Journal: 'On going up into the tower of the 'town hall' of the village of Glendale,' (where several of these owls were secured the past year,) 'I was astonished at the sight presented. The floor and ledges were covered with the cast-up pellets of the birds. There were hundreds of these pellets, and they must have contained the *débris* of several thousand rats and mice.' This is certainly evidence of the economic value of these birds. Mr. Dury also states that he found them living in harmony with the several pairs of tame pigeons which had their quarters in the tower."

FAMILY BUBONIDÆ.—THE OWLS.

The characters of this family having been given with sufficient detail on page 399, they need not be repeated nor enlarged upon here. The North American genera may be distinguished as follows:

- A.** External ear excessively large (extending almost entirely across the head) furnished with an operculum or "flap" along the anterior margin, those of the opposite sides very unlike in form; skull also in some genera very asymmetrical. (*Asioninæ*.)
- a.* Size medium to very large (wing 11.50 inches or more).
1. **Asio.** Size medium (wing 11.50-13.00 inches); cere large and arched, its length on top exceeding the chord of the culmen; nostrils large, horizontally oval, opening laterally; only one to two outer quills with inner webs emarginated; head proportionally small, the ear-tufts variable as to development.
 2. **Syrnium.** Size medium, or rather large (wing 12 inches or more); cere on top shorter than chord of culmen; nostril comparatively small, nearly circular; four or five outer primaries with inner webs emarginated; head proportionally large, with no indication whatever of ear-tufts. Toes partly or entirely naked. Eyes moderately large, black, or dark brown.
 3. **Scotiaptex.** Size very large (wing 16.00 or more); cere on top longer than chord of culmen, the nostrils as in *Syrnium*; six outer quills with inner webs emarginated; head large, and without trace of ear-tufts. Toes densely clothed with long hair-like feathers. Eyes small, yellow.
- b.* Size very small (wing less than 8 inches).
4. **Nyctala.** Cere on top decidedly shorter than chord of culmen; nostrils small, vertically oval, opening in anterior edge of the inflated membrane; two outer quills with inner webs emarginated; head proportionally very large, without distinct ear-tufts.
- B.** External ear small, vertically oval, or nearly circular, without operculum, the two of opposite sides not differing in size or contour; skull always symmetrical. (*Buboninæ*.)
- a.* Nostrils opening in the anterior edge of the flat nasal membrane.
- § Tail even, or very slightly rounded, not more than half as long as the wing.
5. **Megascops.** Size small (wing less than 8.00 inches). Two to five quills with inner webs emarginated, the second to the fifth longest. Bill weak, light-colored; iris usually yellow (said to be brown in *M. flammeolus*). Ear-conch elliptical, about one third the height of the head, with a slightly elevated fringed anterior margin. Ear-tufts usually well developed.
 6. **Bubo.** Size large (wing 12.00 inches or more). Two or three outer quills with inner webs emarginated, the third or fourth quills longest. Bill robust, black; iris usually yellow (brown in *B. mexicanus*). Ear-conch as in *Megascops*, but without the elevated anterior margin, and from one third to one half the height of the skull. Ear-tufts well developed; lower tail-coverts not reaching end of tail; toes covered with short feathers, the claws (and sometimes the terminal scutellæ) wholly exposed; bill not concealed by loreal bristles.

7. *Nyctea*. Size very large (wing 15.00 inches or more). Four outer quills with inner webs emarginated. Lower tail-coverts reaching end of tail; toes densely covered with long hair-like feathers which almost completely hide the claws; bill nearly concealed by the loreal feathers. Ear-tufts rudimentary. (Otherwise similar to *Bubo*.)
§§ Tail much graduated, nearly as long as the wing.
8. *Surnia*. Size rather small (wing about 9 inches). Four outer quills with inner webs emarginated, the third longest. Bill strong, yellow; iris bright yellow. Ear-conch oval, simple, less than the diameter of the eye. No ear-tufts.
9. Nostril opening back from the anterior margin of the much inflated nasal membrane; usually small and circular.
§ Tarsus little if any longer than the middle toe; first quill shorter than tenth.
9. *Glaucidium*. Size very small (wing less than 4.50 inches). Tarsus about equal to the middle toe, densely feathered; tail much more than half the wing, rounded; third or fourth quill longest, the outer four with inner webs emarginated; bill pale colored; iris yellow.
10. *Micrathene*. Size very small (wing less than 4.50 inches). Tarsus a little longer than middle toe, scantily haired; tail less than half the wing, even; fourth quill longest, the outer four with inner webs emarginated; bill pale colored, iris yellow.
§§ Tarsus more than twice as long as the middle toe; first quill longer than the sixth.
11. *Speotyto*. Size moderately small (wing about 7.00 inches). Tarsus closely feathered in front nearly or quite to the toes, naked behind; tail less than half the wing, slightly rounded; bill light colored; iris yellow.

GENUS *ASIO* BRISSON.

Asio BRISS. ORN. I, 1760, 28. Type, *Strix otus* LINN.

Otus CUV. Lec. Anat. Comp. 1799, tab. ii. Same type.

Brachyotus GOULD, P. Z. S. 1837, 10. Type *Strix brachyotus* FORST., = *S. accipitrina* PALL.

GEN. CHAR. Size medium. Ear-tufts well developed or rudimentary; head small; eyes small. Cere much arched, its length more than the chord of the culmen. Bill weak, compressed. Only the first, or first and second, outer primary with inner web emarginated. Tail about half the wing, rounded. Ear-conch very large, about as long as the height of the skull, with an anterior operculum, which extends its full length, and bordered posteriorly by a raised membrane, the two ears asymmetrical.

The two North American species belong to distinct subgenera, as follows:

A. Ear-tufts greatly developed. (*Asio*.)

1. *A. wilsonianus*. Above finely-vermiculated dusky brown and light grayish, the former prevailing; lower parts whitish (buffy beneath the surface), marked with transverse dusky bars, which are much broader than the mesial streaks.

B. Ear-tufts rudimentary. (*Brachyotus*.)

2. *A. accipitrinus*. Ground-color (above and below) ochraceous, varying to buffy whitish, striped, but not barred, with dark brown.

The subgenus *Asio* has but one other representative, as far as known, in America. This is the *A. stygius* (WAGL.) of the tropical regions (including Cuba), which differs from *A. wilsonianus* in much darker color, perfectly naked toes, and attenuated tips to the outer primaries. *A. wilsonianus* has a close ally in *A. otus* of the Palæ-

arctic region, but is sufficiently distinct. Of the subgenus *Brachyotus* there are two American species besides the nearly cosmopolitan *A. accipitrinus*, namely, *A. galapagoensis* GOULD, confined to the Galapagos Islands, and *A. portoricensis* RIDGW., peculiar to the island of Porto Rico.

Asio wilsonianus (Less.)

AMERICAN LONG-EARED OWL.

Popular synonym. Lesser Horned Owl.

Strix otus WILS. Am. Orn. vii, 1812, 73, pl. 51, fig. 3 (*nec* LINN).—NUTT. Man. i, 1832, 130.—

AUD. Orn. Biog. iv, 1835, 573, pl. 83.

Strix (Asio) otus SW. & RICH. F. B.—A. ii, 1831, 72.

Otus wilsonianus LESS. Traité, i, 1831, 110.—CASS. in Baird's B. N. Am. 1858, 53.—BAIRD,

Cat. N. Am. B. 1859, No. 51.

Otus vulgaris var. *wilsonianus* ALLEN, 1872.—COUES, Key, 1872, 204; Check List, 1873, No.

320.—B. B. & R. Hist. N. Am. B. iii, 1874, 18.

Otus vulgaris b. *wilsonianus* COUES, B. N. W. 1874, 304.

Asio wilsonianus COUES, 2d Check List, 1882, No. 472.

Otus vulgaris americanus SCHLEG. 1862. (*Nec Strix americana* GMEL.)

Asio otus, subsp. a. *Asio americanus* SHARPE, Cat. B. Brit. Mus. ii, 1875, 229.

Asio americanus RIDGW. Nom. N. Am. B. 1881, No. 395.

HAB. North America in general, north to the limit of forests, south to Mexican table-lands.

SP. CHAR. *Adult.* Upper surface transversely mottled with blackish brown and grayish white, the former predominating, especially on the dorsal region; feathers of the nape and wings ochraceous beneath the surface; lower scapulars with a few obsolete spots of white on lower webs. Primary coverts dusky, with transverse series of dark mottled grayish spots, these becoming somewhat ochraceous basally; ground color of the primaries grayish, this especially prevalent on the inner quills; the basal third (or less) of all ochraceous, this decreasing in extent on inner feathers, the grayish tint everywhere finely mottled transversely with dusky, but the ochraceous unvaried; primaries crossed by a series of about seven quadrate blackish brown spots, these anteriorly about as wide as the intervening yellowish or mottled grayish; the interval between the primary coverts and the first of these spots about .50 to 1.00 inch on the fourth quill, the spots on the inner and outer feathers approaching the coverts, or even underlying them; the inner primaries—or, in fact, the general exposed surface—with much narrower bars of dusky. Ground color of the wings like the back, this growing paler on the outer feathers, and becoming ochraceous basally, the tip approaching whitish; secondaries crossed by nine or ten narrow bands of dusky.

Ear-tufts with the lateral portion of each web ochraceous, this becoming white, somewhat variegated with black, toward the end of the inner webs, on which the ochraceous is broadest; median portion clear, unvariegated black. Forehead and postauricular disk minutely speckled with blackish and white; facial circle continuous black, becoming broken into a variegated collar across the throat. "Eyebrows" and lores grayish white; eye surrounded with blackish, this broadest anteriorly above and below, the posterior half being like the ear-coverts. Face plain ochraceous; chin and upper part of the throat immaculate white. Ground-color below pale ochraceous, the exposed surface of the feathers, however, white; breast with broad longitudinal blotches of clear dark brown; each feather and sides and flanks marked with a median stripe, crossed by as broad, or broader, transverse bars, of blackish brown; abdomen, tibial plumes, and legs plain ochraceous, becoming nearly white on the lower part of tarsus and on the toes; tibial

plumes with a few sagittate marks of brownish; lower tail-coverts each with a median sagittate mark of dusky, this continuing along the shaft, forking toward the base. Lining of the wing plain pale ochraceous; inner primary coverts blackish brown, forming a conspicuous spot.

Wing, 11.50-12.00; tail, 6.00-6.20; culmen, .65; tarsus, 1.20; middle toe, 1.15.

Young. Wings and tail as in the adult; other portions transversely banded with blackish brown and grayish white, the latter prevailing anteriorly; eyebrows and loreal bristles entirely black; legs white.

Western specimens apparently average decidedly grayer than eastern ones, some of the latter being very much darker than any I have seen from the West.

The American Long-eared Owl is closely related to the European *A. otus*, but seems sufficiently distinct. The latter has the upper parts striped, instead of confusedly mottled, with dusky; the lower parts ochraceous on the surface, relieved by ragged longitudinal stripes (but not distinct bars), of dusky.

The Long-eared Owl is a species of very extensive distribution, yet few of our owls are less generally known. This arises from its strictly nocturnal habits and its predilection for special localities, such as are not everywhere to be found. Its favorite haunts are dense willow thickets, where it may be surprised taking its day-time nap, standing bolt upright, with feathers closely pressed to its body, and long ear-tufts erect, thus presenting a very comical figure.

"The usual number of eggs laid by the Long-eared Owl on the Pacific coast is five, although six in a set are by no means rare. When fresh, the eggs are of a bright white color. They are about equally rounded on both ends and rather globular in shape. They average about 1.60 inches in length by 1.32 inches wide, and vary considerably in size, but rarely in shape. The Long-eared Owl commences laying during the first week in April, and I believe that they rear but a single brood in a season. They will lay a second and sometimes a third set after losing their first one, and will occupy the same nest for several seasons, if not too often disturbed. The eggs are hatched in about sixteen days, and the young for the first two weeks are covered with a thick grayish down. Their food consists principally of mice and the smaller rodents, and I doubt if they are guilty of catching small birds." (Capt. C. E. Bendire, in *Ornithologist and Oölogist*.)

SUBGENUS *Brachyotus* GOULD.*Asio accipitrinus* (Pall.)

SHORT-EARED OWL.

Popular synonyms. Marsh Owl; Meadow Owl; Prairie Owl.

Strix accipitrina PALL. Reise. Russ. Reichs. i, 1771-76, 455.

Asio accipitrinus NEWT. ed. Yarrell's Brit. B. i, 1872, 163.—RIDGW. Nom. N. Am. B. 1881, No. 396.—COUES, 2d Check List, 1882, No. 473.

Strix brachyotus FORST. Phil. Trans. lxii, 1772, 384.—WILLS. Am. Orn. iv, 1812, 64, pl. 33, fig. 3.—NUTT. Man. i, 1832, 132, AUD. Orn. Biog. v, 1839, 273, pl. 432.

Otus brachyotus BOIE, 1822.—AUD. Synop. 1839, 28; B. Am. i, 1840, pl. 33.

Otus (*Brachyotus*) *brachyotus* B. B. & R. Hist. N. Am. B. iii, 1874, 23.

Strix palustris BECHST. Nat. Deutschl. ii, 1791, 344.

Brachyotus palustris BP. 1838.—COUES, Key, 1872, 204; Check List, 1874, No. 321; B. N. W. 1874, 306.

Brachyotus cassini BREWER, Proc. Bost. Soc. Nat. Hist. 1856, 321.—CASS. in Baird's B. N. Am. 1858, 54.—BAIRD, Cat. N. Am. B. 1859, No. 52.

HAB. Nearly cosmopolitan; whole Northern Hemisphere, including Sandwich Islands, and all of America, from Arctic coast to Cape Horn. (Replaced, however, in Porto Rico and Galapagos by *A. portoricensis* and *A. galapagoensis*, respectively.)

SP. CHAR. *Adult.* Ground-color of the head, neck, back, scapulars, rump, and lower parts, pale ochraceous; each feather (except on the rump) with a median longitudinal stripe of blackish brown—this broadest on the scapulars; on the back, nape, occiput, and jugulum, the two colors about equal; on the lower parts, the stripes grow narrower posteriorly, those on the abdomen and sides being in the form of narrow lines. The flanks, legs, anal region, and lower tail coverts are always perfectly immaculate; the legs most deeply ochraceous, the lower tail-coverts nearly pure white. The rump has indistinct crescentic marks of brownish. The wings are variegated with the general dusky and ochraceous tints, but the markings are more irregular, the yellowish in form of indentations or confluent spots, approaching the shafts from the edge—broadest on the outer webs. Secondaries crossed by about five bands of ochraceous, the last terminal; primary coverts plain blackish brown, with one or two poorly defined transverse series of ochraceous spots on the basal portion. Primaries ochraceous on the basal two thirds, the terminal portion clear dark brown, the tips (broadly) pale brownish yellowish, this becoming obsolete on the longest; the dusky extends toward the bases, in three to five irregularly transverse series of quadrate spots on the outer webs, leaving, however, a large basal area plain ochraceous, this somewhat more whitish anteriorly. The ground-color of the tail is ochraceous, becoming whitish exteriorly and terminally, crossed by five broad bands (about equaling the ochraceous, but becoming narrower toward outer feathers) of blackish brown; on the middle feathers, the ochraceous spots enclose smaller, central transverse spots of blackish; the terminal ochraceous band is broadest. Eyebrows, lores, chin, and throat soiled white, the loreal bristles with black shafts; face dingy ochraceous white, feathers with darker shafts; eye broadly encircled with black. Postorbital circle minutely speckled with pale ochraceous and blackish, except immediately behind the ear, where for about an inch it is uniform dusky. Lining of the wing immaculate delicate yellowish white; terminal half of under primary coverts clear blackish brown; under surface of primaries plain delicate ochraceous white; ends and one or two very broad anterior bands, dusky. Wing, 11.80-13.00; tail, 5.80-6.10; culmen, .60-.65; tarsus, 1.75; middle toe, 1.20.

Probably no land bird has so extensive a range as the present species, occurring as it does throughout all the grand divisions of the earth's surface, except Australia, and also on many of the Polynesian islands. In America it is found everywhere in suitable localities, from Alaska and Greenland to Cape Horn.

Notwithstanding the fact that this species has an almost cosmopolitan range (the Australian region being almost the only part of the world where it is wanting), and also that great variations are noticeable in the plumage of the different individuals, I am convinced of the futility of any attempt to separate, as races even, the birds from different countries. In this connection the reader is referred to Vol. IV., of the "Proceedings" of the U. S. National Museum, pp. 366-371, where the subject is treated in detail.

In Illinois the Short-eared Owl occurs in all open grassy situations, either as a winter visitant or resident, and is particularly common on the prairies. Mr. Nelson says (in *Bull. Essex Inst.* Vol. VIII., p. 117,) the following of it as observed by him in the northeastern portion of the State:

"The most abundant species of the family. Arrives from the north in large numbers the first of November, and disperses through the State. They are common everywhere, on prairies and marshes, during the winter. Remain concealed in a bunch of grass or reeds until about two o'clock p. m., when they commence flying low over the ground in search of their prey. When approached, while standing on the ground, they crouch and try to escape observation, much in the manner of the Burrowing Owl. They are very harmless, and are easily tamed."

GENUS **SYRNIUM** SAVIGNY.

Syrnium SAVIGNY, Desc. de l'Egypte, 1809, 293, et AUCTORUM. Type (by elimination), *S. stridula* LINN., = *S. aluco* LINN.

GEN. CHAR. Size varying from medium to very large. No ear-tufts. Head very large; the eyes comparatively small. Five outer primaries, with their inner webs sinuated. Tarsi and upper portion of the toes densely clothed with hair-like feathers—the toes, however, sometimes entirely naked. Tail considerably more than half as long as the wing, decidedly rounded. Ear orifice very high, but not as high as the skull, and furnished with an anterior operculum, which does not usually extend along the full length; the two ears asymmetrical. Bill yellow.

Syrnium nebulosum (Forst.)

BARRED OWL.

Popular synonym. Hoot Owl.

Strix nebulosa FORST. Phil. Trans. lxii, 1773, 386, 424.—WILS. Am. Orn. iv, 1812, 61, pl. 33, fig. 2.—NUTT. Man. i, 1832, 133.—AUD. Orn. Biog. i, 1832, 242; v, 1839, 386, pl. 46.—RIDGW. Nom. N. Am. B. 1881, No. 397.—COUES. 2d Check List, 1882, No. 476.

Syrnium nebulosum BOIE, 1828.—AUD. Synop. 1839, 27; B. Am. i, 1840, 132, pl. 36.—CASS. in Baird's B. N. Am. 1858, 56.—BAIRD, Cat. N. Am. B. 1859, No. 54.—COUES, Key, 1872, 204; Check List, 1873, No. 323; B. N. W. 1874, 308 (*b. nebulosum*).—B. B. & R. Hist. N. Am. B. iii, 1874, 29 (var. *nebulosum*).

HAB. Eastern North America, north to Hudson's Bay, south to Georgia and eastern Texas, west to the edge of the Great Plains. (Replaced in Florida by *S. nebulosum allenii*, a race with perfectly naked toes and somewhat different coloration.)

SP. CHAR. *Adult*. Head, neck, breast, back, scapulars, and rump with broad regular transverse bars of ochraceous white and deep umber-brown, the latter color always terminal; on the upper surface the brown somewhat exceeds the whitish in width, but on the neck and breast the white rather predominates. The lower third of the breast is somewhat differently marked from the upper portion, the brown bars being connected along the shafts of the feathers, throwing the white into pairs of spots on opposite webs. Each feather of the abdomen, sides, flanks, and lower tail-coverts has a broad median longitudinal stripe of brown somewhat deeper in tint than the transverse bars on the upper parts; the anal region is plain, more ochraceous, white; the legs have numerous, but rather faint, transverse spots of brown. Ground-color of the wings and tail brown, like the bars of the back; middle and secondary wing-coverts with roundish transverse spots of nearly pure white on lower webs; lesser coverts plain rich brown; secondaries crossed by six bands of pale grayish brown, passing into paler on the edge of each feather; primary coverts with four bands of darker ochraceous brown; primaries with transverse series of quadrate pale brown spots on the outer webs (growing deeper in tint on inner quills); on the longest are about eight. Tail, like the wings, crossed with six or seven sharply defined bands of pale brown, the last terminal. Face grayish white with concentric semicircular bars of brown; eyebrows and lores with black shafts; a narrow crescent of black against anterior angle of the eye. Facial circle of blackish brown and creamy white bars, the former prevailing along the anterior edge, the latter more distinct posteriorly, and prevailing across the neck in front, where the brown forms disconnected transverse spots. Bill deep wax- or dull chrome-yellow; iris brownish black, the pupil appearing dull blue by contrast; scutellæ of toes dull wax-yellow or grayish yellow; soles of toes deep dull chrome-yellow; claws black, or dark horn-color tipped with black.

Total length, 19.50-22.00 inches; extent, .44-.48; wing, 13.00-15.00; tail, about 9.00-10.00.

This is by far the most numerous species of owl in wooded portions of the State. It is familiarly known as the "Hoot Owl" on account of its well-known loud hooting call, generally interpreted as "*who—who, who, who—who, who, who, ar-r-r-r-e, you?*" although sometimes translated as "who cooks for you all?" This call is far louder than the deeper bass hooting of the Great Horned Owl, and is also more varied. Frequently it is preceded by a very loud, "blood-curdling" shriek, causing the hair of the uninitiated to rise on his

head and his knees to tremble for fear that a panther is prowling in the neighborhood. When several get together their nocturnal concerts are very entertaining. One appears to tell some joke or do something funny, at which the rest set up a hearty though demoniacal *he-he-he-he*, *hi-hi-hi-hi*, *ha-ha-ha-ha*,—and the uncanny company is boisterously hilarious for a few moments, when the solitude of night again reigns supreme.

The Barred Owl is less strictly nocturnal than the Great Horned Owl, Long-eared Owl, or Little Screech Owl, and may often be seen flying about during dark or cloudy weather. In fact, its call may often be heard in bright sunny days, and is then often the means of the bird's destruction, as perhaps no bird is more easily lured by a good imitation of its note,—and that of the present species is susceptible of very exact imitation.

GENUS *SCOTIAPTEX* SWAINSON.

Scotiaptex SWAINS. Classif. B. ii, 1837, 217. Type *Strix cinerea* GMEL.

GEN. CHAR. Size large, although the body is very small in proportion to the length of the wing and tail. Head without ear-tufts. Six outer quills with inner webs emarginated. Toes completely and densely covered by long hair-like feathers.

Scotiaptex cinereum (Gmel.)

GREAT GRAY OWL.

Popular synonyms. Great Cinereous Owl; Great Sooty Owl; Spectral Owl.

Strix cinerea GMEL. S. N. i, pt. i, 1788, 291.—SW. & RICH. F. B. A. ii, 1831, 77, pl. 31.—NUTT. Man. i, 1832, 128.—AUD. Orn. Biog. iv, 1838, 364, pl. 351.—COUES, 2d Check List, 1882, No. 474.

Ula cinerea BP. Consp. i, 1850, 53 (part).—RIDGW. Nom. N. Am. B. 1881, No. 399.

Syrnium cinereum BP. 1838.—AUD. Synop. 1839, 26; B. Am. i, 1840, 130, pl. 35.—CASS in Baird's B. N. Am. 1858, 56.—BAIRD, Cat. N. Am. B. 1859, No. 33.—COUES, Check List, 1873, App. p. 131; B. N. W. 1874, 307 (b. *cinereum*).

Syrnium lapponicum var. *cinereum* COUES, Key, 1872, 204; Check List, 1873, No. 322.

Syrnium (Scotiaptex) cinereum B. B. & R. Hist. N. Am. B. iii, 1874, 30.

HAB. Northern North America, south, in winter, to northern United States, as far as Massachusetts, Rhode Island, northern New York, northern Illinois, Minnesota, etc.; breeding as far south as Canada ("Oölogist", v, 1880, p. 54).

SP. CHAR. *Adult.* Ground-color of the upper surface dark vandyke-brown, but this relieved by a transverse mottling (on the edges of the feathers) of white, the median portions of the feathers being scarcely variegated, causing an appearance of indistinct longitudinal dark stripes these most conspicuous on the scapulars and back. The anterior portions above are more regularly barred transversely; the white bars interrupted however, by the brown median stripe. On the rump and upper tail-coverts the mottling is more profuse, causing a grayish appearance. On the wing-coverts the outer webs

are most variegated by the white mottling. The alula and primary coverts have very indistinct bands of paler; the secondaries are crossed by nine bands (last terminal, and three concealed by coverts) of pale grayish brown, inclining to white at the borders of the spots; primaries crossed by nine transverse series of quadrate spots of mottled pale brownish gray on the outer webs, those beyond the emargination obscure,—the terminal crescentic bar distinct, however; upper secondaries and middle tail-feathers with coarse transverse mottling, almost forming bars. Tail with about nine paler bands, these merely marked off by parallel, nearly white bars, enclosing a plain grayish brown, sometimes slightly mottled, space, just perceptibly darker than the ground-color; basally the feathers become profusely mottled, so that the bands are confused; the last band is terminal. Beneath, the ground-color is grayish white, each feather of the neck, breast, and abdomen with a broad, longitudinal ragged stripe of dark brown, like the ground-color of the upper parts; sides, flanks, crissum, and lower tail-coverts with regular transverse narrow bands; legs with finer, more irregular, transverse bars of dusky. "Eyebrows," lores and chin grayish white; a dusky space at anterior angle of the eye; face grayish white, with distinct concentric semicircles of blackish brown; facial circle dark brown, becoming white across the foreneck, where it is divided medially by a spot of brownish black, covering the throat.

Wing, 16.00-18.00; tail, 11.00-13.00; culmen, 1.00; tarsus, 2.30; middle toe, 1.50.

The Old World form of this species (*cinereum lapponicum*) is much paler in coloration, the lighter markings predominating. The under side of the primaries shows a conspicuous patch of whitish, covering the basal portion of these feathers, this patch being much reduced in size or altogether wanting in the American race.

The Great Gray Owl is a northern bird of very rare or accidental occurrence in Illinois. It is given by Mr. Nelson (p. 117 of his list) as a very rare winter visitant to Cook county, but outside of this record we have no knowledge of its having been taken or observed anywhere in the State.

GENUS *NYCTALA* BREHM.

Nyctala BREHM, Isis, 1828, 1271. Type, *Strix tengmæmi* GMEL.

GEN. CHAR. Size small. Head very large, without ear-tufts; eyes moderate; iris yellow. Two outer primaries with their inner webs distinctly emarginated. Tarsi and toes densely, but closely feathered. Ear-conch very large, nearly as high as the skull, with an anterior operculum; the two ears exceedingly asymmetrical, not only externally but in their osteological structure. Furcula not anchylosed posteriorly, but joined by a membrane.

The North American species of this genus are two in number, and may readily be distinguished from one another by the characters given in the following comparative diagnosis. One of them

is conspecific with the single Palearctic species, *N. tengmalmi*. A third species, the *N. harrisi* Cassin, belongs to northern South America (Colombia).

COM. CHAR. *Adults*. Above brown, more or less spotted with white; beneath white, broadly striped with reddish brown. *Young*. Above uniform brown, the wings and tail, however, marked with white, as in the adult. Face uniform dusky surmounted by conspicuous white "eyebrows." Lower parts uniform brown anteriorly, and uniform bright ochraceous posteriorly.

1. *N. tengmalmi richardsoni*. Wing, 7.20 inches or more; tail about 4.50; culmen, .60; tarsus, 1.00; middle toe, .67. Bill yellow.
2. *N. acadica*. Wing, 5.25-5.50; tail, 2.60-3.00; culmen, .45-.50; tarsus, .80; middle toe, .60-.65. Bill black.

Nyctala tengmalmi richardsoni (Bp.)

RICHARDSON'S OWL.

Popular synonym. Sparrow Owl.

Strix tengmalmi Sw. & Rich. F. B.-A. ii, 1831, 94, pl. 82, (nec GMEL.).—NUTT. Man. 1, 1832, 562.—AUD. Orn. Biog. iv, 559, pl. 380.

Ulaa tengmalmi AUD. Synop. 1829, 24; B. Am. i, 1840, 122, pl. 32.

Nyctale richardsoni BONAP. Comp. List, 1838, 7.—CASS. in Baird's B. N. Am. 1853, 57.—BAIRD, Cat. N. Am. B. 1859, No. 55.

Nyctale tengmalmi var. *richardsoni* RIDGW.—COUES, Key, 1872, 205; Check List, 1874, No. 327; B. N. W. 1874, 313.—B. B. & R. Hist. N. Am. B. iii, 1874, 40.

Nyctale tengmalmi richardsoni RIDGW. Nom. N. Am. B. 1881, No. 400.—COUES, 2d Check List, 1882, No. 482.

HAB. Northern North America; south, in winter, to New England (New Hampshire, Massachusetts, and Rhode Island), Wisconsin, northern Illinois, and Oregon.

SP. CHAR. *Adult*. Upper surface brownish olive or umber-brown. Forehead and crown with numerous elliptical (longitudinal) marks of white, feathers everywhere with large partly concealed spots of the same; these spots largest on the neck and scapulars—on the latter of a roundish form, the outer webs of those next the wing being almost wholly white, the edge only brown; on the nape the spots form V-shaped marks, the spots themselves being somewhat pointed; below this is a transverse, less distinct collar, of more concealed spots; wing-coverts, toward the edge of the wing, with a few large, nearly circular, white spots; secondaries with two transverse series of smaller white spots, these crossing about the middle, remote from the end and base; outer feathers of the alula with two white spots along the margin; primary coverts plain; primaries with four or five transverse series of white spots; tail with the same number of narrow transverse spots, forming interrupted bands, the spots not touching the shaft—the last spot not terminal. Facial circle much darker brown than the crown, and speckled with irregular spots of white, these either median or upon only one web; across the throat the circle becomes paler brown, without the white spotting. Eyebrows and face grayish white; lores and eyelids blackish. Lower parts white, becoming pale ochraceous on the legs; sides of the breast, sides, flanks, and lower tail-coverts with daubs of brown (slightly lighter and more reddish than on the back), those of the breast somewhat transverse, but the posterior ones decidedly longitudinal; front of tarsus clouded with brown. Wing, about 7.20; tail, 4.50; culmen, .60; tarsus, 1.00; middle toe, .97.

A female from Alaska (No. 49,802, Nulato, April 28, 1866; W. H. Dall) is considerably darker than the specimen described above; the occiput has numerous circular spots of white, and the tarsi are more thickly spotted; no other differences, however, are appreciable. Two specimens from Quebec (Nos. 17,064 and 17,065; Wm. Couper) are exactly similar to the last, but the numerous white spots on the forehead are circular.

Young. Above uniform dark brown, the sides of the forehead, back to the eyes, and a space beneath the eye to the base of the bill, white; lower parts, from breast back, uniform fulvous or tawny ochraceous.

This species was included among the "probabilities" in my catalogue of 1881 (p. 207), having been taken by Dr. Hoy near Racine, Wisconsin, and being included in Mr. Allen's catalogue of the birds of Iowa. Its only claim, to date, to being a member of the Illinois fauna is the following record, in the *Ornithologist and Oölogist* (Pawtucket, R. I.) for March, 1885, p. 47, by J. E. Dickinson, of Rockford, Winnebago county:

"Captured one Richardson's Owl, October 15, 1884. He flew against a store window and was slightly stunned."

Nyctala acadica (Gmel.)

SAW-WHET OWL.

Popular synonyms. Acadian Owl; White-fronted Owl; Kirtland's Owl.

Strix acadica GMEL. S. N. i, pl. i, 1788, 296.—NUTT. Man. i, 1832, 137.—AUD. Orn. Biog. ii, 1834, 567; v, 1839, 397, pl. 199.

Nyctale acadica BP. 1838.—CASS. in Baird's B. N. Am. 1858, 58.—BAIRD, Cat. N. Am. B. 1859, No. 56.—COUES, Key, 1872, 205; Check List, 1873, No. 328; 2d ed. 1882, No. 483; B. N. W. 1874, 315.—B. B. & R. Hist. N. Am. B. iii, 1874, 43.—RIDGW. Nom. N. Am. B. 1881, No. 401.

Ulula acadica AUD. Synop. 1839, 24; B. Am. i, 1840, 123, pl. 33.

Strix albifrons SHAW, Nat. Misc. v, 1794, pl. 171.

Nyctale albifrons CASS. in Baird's B. N. Am. 1858, 57.—BAIRD, Cat. N. Am. B. 1859, No. 57.

Strix passerina WILS. Am. Orn. iv, 1812, 66, pl. 34, fig. 1, (*nec* LINN.)

Nyctale kirtlandi HOX. Proc. Phila. Acad. vi, 1852, 210.—CASS. Illustr. 1853, 63, pl. 11.

HAB. Northern United States and British Provinces; south to about 40° (or a little beyond) in Eastern Province, but in Western Province entirely across into Mexico, on high mountain ranges, and south to Oaxaca.

SP. CHAR. *Adult female* (No. 120,044, Washington, D. C., Feb., 1859; C. Drexler). Upper surface plain soft reddish olive, almost exactly as in *N. richardsoni*; each feather of forehead, anterior part of the crown, and the facial circle, marked with a short median line of white; feathers of the neck white beneath the surface, forming a collar of blotches; lower webs of scapulars white bordered with brown; wing-coverts with a few rounded white spots; alula with the outer feathers broadly edged with white. Primary coverts and secondaries perfectly plain; five outer primaries with semi-rounded white spots on the outer webs, these decreasing toward the ends of the feathers, leaving but about four series well defined. Tail crossed by three widely separated narrow bands of white, formed of spots not touching the shaft on either web; the last band is terminal. "Eye-brow" and sides of the throat white; lores with a blackish suffusion, this more concentrated around the eye; face dirty white, feathers indistinctly edged with brownish, causing an indistinctly streaked appearance: the facial circle in its extension across the throat converted into reddish umber spots. Lower parts, generally, silky white, becom-

ing fine ochraceous on the tibiæ and tarsi; sides of the breast like the back, but of a more reddish or burnt-sienna tint; sides and flanks with longitudinal daubs of the same; chest, abdomen, lower tail-coverts, tarsi, and tibiæ, immaculate. Wing formula, 4-3-5-1-8. Wing, 5.40; tail, 2.80; culmen, .50; tarsus, .80; middle toe, .60.

Seven specimens before me vary in length of wing from 5.25 to 5.80; tail 2.60 to 3.00 (female). The largest specimen is 12,053 (female, Fort Tejon, California: J. Xantus). This differs from the specimen described, in whiter face, more conspicuous white streaks on forehead, smaller, less numerous, red spots below, and in having a fourth white band on the tail; this, however, is very inconspicuous. There are no authentic males before me, though only two are marked as females; the extremes of the series probably represent the sexual discrepancy in size.

Young male (No. 12,814, Racine, Wisconsin, July, 1859; Dr. P. R. Hoy): Upper surface continuous plain dark sepia-olive; face darker, approaching sooty blackish, perfectly uniform; around the edge of the forehead, a few shaft-lines of white; scapulars with a concealed spot of pale ochraceous on lower webs; lower feathers of wing-coverts with a few white spots; outer feather of the alula scalloped with white; primary coverts perfectly plain; five outer primaries with white spots on outer webs, these diminishing toward the end of the feathers, leaving only two or three series well defined; tail darker than the wings, with three narrow bands composed of white spots, these not touching the shaft on either web. "Eyebrows" immaculate white, lores more dusky; face and eyelids dark sooty brown; sides of the chin white. Throat and whole breast like the back, but the latter paler medially, becoming here more fulvous; rest of the lower parts plain fulvous ochraceous, growing gradually paler posteriorly. Lining of the wing plain dull white; under surface of primaries with dusky prevailing, but this crossed by bands of large whitish spots; the three outer feathers, however, present a nearly uniform dusky aspect, being varied only basally. Wing formula, 3, 4-2-5-6-7, 1. Wing, 5.50; tail, 2.80; culmen, .45; tarsus, .80; middle toe, .65.

This handsome little owl is not an uncommon resident of the more northern portions of the State and occasionally makes its appearance during winter in the southern counties. According to Mr. Nelson (p. 117 of his list), it is "not an uncommon species" in Cook county, being "of frequent occurrence in Chicago, where, upon some of the most frequented streets in the residence portion of the town, over a dozen specimens have been taken within two years." Mr. H. K. Coale, of Chicago, informs me that he has examined or skinned thirty specimens in ten years.

GENUS **MEGASCOPS** KAUP.

Scops SAVIGN. Desc. de l'Egypte, 1809, 291. Type, *Strix scops* LINN. (Nec BRUNN. 1772.)
Megascops KAUP, Isis, 1848, 765. Type, *Strix asio* LINN.

GEN. CHAR. Small owls with distinct ear-tufts, the tarsus more or less feathered (usually completely feathered) the wings ample (more than twice the length of the short, slightly rounded tail), the plumage exceedingly variegated with vermiculations, cross-bars, and mottlings; toes naked or bristled—never completely feathered, except toward the base.

The above brief diagnosis is sufficient to characterize this group. In general aspect the species of this genus are miniatures of those which belong to the genus *Bubo*, and are perhaps as nearly related structurally to the latter as to any other members of the family.

All the American species have the outer webs of the scapulars mostly light-colored (generally white, with a blackish terminal border—rusty ochraceous in *flammeolus* and the darker forms of *brasilianus*), producing a more or less distinct stripe along each side of the dorsal region; the feathers of the upper and lower parts usually have blackish shaft-streaks, those beneath generally with narrow transverse bars; outer webs of the remiges with light-colored spots, and the tail more or less (never sharply) banded. Nearly all the species are, in some part of their range, dichromatic, having a bright rufous phase, quite different from the "normal" grayish plumage.

Megascops asio (Linn.)

SCREECH OWL.

Popular synonyms. Little Mottled Owl; Little Red Owl

Strix asio LINN. S. N. ed. 12, i, 1766, 132.—WILS. Am. Orn. v, 1812, 83, pl. 42, fig. 1.—AUD. Orn. Biog. i, 1832, 486; v, 1839, 392, pl. 97.—NUTT. Man. i, 1832, 120.

Scops asio BP. 1838.—CASS. in Baird's B. N. Am. 1858, 51.—BAIRD, Cat. N. Am. B. 1859, No. 49.—COUES, Key, 1872, 202; Check List, 1873, No. 318; 2d ed. 1882, No. 465; B. N. W. 1874, 303.—B. B. & R. Hist. N. Am. B. iii, 1874, 49.—RIDGW. Nom. N. Am. B. 1881, No. 402.

Bubo asio VREILL. 1807.—AUD. Synop. 1839, 29; B. Am. i, 1840, 147, pl. 40.

Strix nœvia GMEL. S. N. i, pt. i, 1788, 289.—WILS. Am. Orn. iii, 1812, 16, pl. 19, fig. 1.

HAB. Eastern United States and British Provinces, west to edge of the Great Plains. (In Florida replaced by *M. asio floridanus* and in southern Texas by *M. asio maccalli*.)

a. Normal plumage.

SP. CHAR. *Adult*. Ground-color above brownish cinereous, palest on the head, purest ashy on the wings, minutely mottled with fine zigzag transverse bars of black, each feather with a median ragged stripe of the same along the shaft. Inner webs of ear-tufts, outer webs of scapulars, and spots occupying most of the outer webs of the two or three lower feathers of the middle and secondary wing-coverts, white, forming (except on the first) conspicuous spots, those of the scapulars bordered with black. Secondaries crossed with about seven regular paler bands, each enclosing a more irregular dusky

one; the ground-color, however, so mottled with grayish, and the pale bands with dusky, that they are by no means sharply defined or conspicuous, though they are very regular; alula and primary coverts more sharply barred with cream-colored spots, those on the former nearly white; primaries with broad quadrate spots of creamy white on outer webs, these forming from seven to eight transverse bands, the last of which is not terminal. Tail more irregularly mottled than the wings, and crossed by seven to eight narrow, indistinct, but continuous pale bands. Eyebrows white, the feathers bordered with dusky; cheeks, ear-coverts, and lower throat dull white, with transverse bars of blackish; chin immaculate; upper eyelid dark brown; facial circle black; neck and jugulum like the cheeks, but more strongly barred, and with blackish along the shaft. Ground-color of the lower parts white, each feather with a median stripe of black, this throwing off distinct bars to the edge of the feathers; the median black is largest on sides of the breast, where it expands into very large conspicuous spots, having a slight rusty exterior suffusion; the abdomen medially, the anal region, and the lower tail-coverts are almost unvaried white. Tibiæ and tarsi dull white, much barred transversely with blackish, or pale ochraceous, more sparsely barred with dark brownish. Lining of the wing creamy white, varied only along the edge; light bars on under surface of primaries very indistinct.

b. Rufescent plumage.

Adult. General pattern of the preceding, but the grayish tints replaced by lateritious rufous, very fine and bright, often with a slight vinaceous cast; this is often uniform, showing no trace of the transverse dark mottling; there are, however, black shaft-lines to the feathers (these most conspicuous on the head above, and scapulars, and narrower and more sharply defined than in the gray plumage). The inner webs of the ear-tufts, outer webs of scapulars, and lower secondary and middle wing-coverts, are white, as in the gray plumage; those of the scapulars are also bordered with black. The secondaries, primaries, and tail are less bright rufous than the other portions, the markings as in the gray plumage, only the colors being different. The upper eyelid, and, in fact, all around the eye, fine light rufous; cheeks and ear-coverts paler, scarcely variegated. Lower parts without the transverse bars of the gray plumage, but in their place an irregular clouding of fine light rufous, like the back; the lower parts medially (very broadly) immaculate snowy white; most of the feathers having the red spotting show black shaft-stripes, but the pectoral spots are not nearly so large or conspicuous as in the gray bird. Tibiæ fine pale ochraceous rufous; tarsi the same posteriorly, in front white with cuneate specks of rufous; lower tail-coverts each with a median transversely cordate spot of dilute rufous, the shaft black. Lining of the wing with numerous rufous spots.

Young. Wings and tail as in adult; markings on head and body as in the young gray bird, but white bars more reddish, and dark ones more brown.

Two adult males obtained at Mt. Carmel, Illinois, measured, when fresh, as follows: *Gray specimen.* Total length, 7.50 inches; extent, 19.50 inches. *Rufous specimen* (January 21, 1867): Total length, 8.25 inches; extent, 21.50. Two adult females from the same locality measured, respectively, 9 inches in length by 21.50 in extent, and 9 by 23 inches. The fresh colors of the soft parts were as follows: Bill pea-green or pale greenish blue, sometimes with a tinge of emerald-green; iris lemon-yellow; toes and basal half of claws yellowish gray, the terminal portion of the claws dusky.

The fact that in eastern North America this species is dichromatic, while in most parts of the West it presents a single phase of plumage—the gray—is one of the most interesting problems in North American ornithology. Scarcely less curious is the fact that in different portions of the Eastern Province the two phases vary in relative abundance. For example, during several years' close observation of birds in the vicinity of Mount Carmel, Illinois, I saw but a single specimen in the gray plumage, while the number of "red" specimens must have exceeded fifty. In the vicinity of Washington, D. C., the proportion of the two phases is more nearly equal, although the rufous style is perhaps the more common. In the neighborhood of Cincinnati, Ohio, about the same proportion obtains, according to Dr. F. W. Langdon, who, in the *Journal of the Cincinnati Society of Natural History* (Vol. V., pp. 52, 53), states that of 56 specimens actually examined, 32 were rufous and 24 were gray.

The Screech Owl (as this species is almost universally known), is, with the possible exception of the Barred Owl, much the most abundant species of the family in Illinois, and is a constant resident wherever found.

We quote the following account of its habits, by Dr. T. M. Brewer, from *History of North American Birds*, Vol. III., pp. 56, 57:

"The Mottled Owl is nocturnal in its habits, never appearing abroad in the daylight except when driven out by the attacks of hostile birds that have discovered it in its retreat. Its eyes cannot endure the light, and it experiences great inconvenience from such an exposure. During the day it hides in hollow trees, in dark recesses in the forests, or in dark corners of barns, and comes out from its retreat just before dark. During the night it utters a very peculiar wailing cry, not unlike the half-whining, half-barking complaints of a young puppy, alternating from high to low, intermingled with deep guttural trills. These cries, which are sometimes prolonged until after midnight, usually elicit an answer from its mate or companions, and would seem to be uttered as a call soliciting a reply from some lost associate. Their flight is noiseless and gliding, and they move in a manner so nearly silent as to be hardly perceptible. They are excellent mousers, and swallow their food whole, ejecting the indigestible parts, such as hair, bones, feathers, etc."

GENUS BUBO CUVIER.

Bubo Cuv. Reg. An. 1817, 331. Type, *Strix bubo* LINN.

GEN. CHAR. Size varying from medium to very large; head with well-developed ear-tufts. Bill black; iris yellow, orange, or brown. Two or three outer quills with their inner webs emarginated. Third or fourth quill longest. Bill very robust, the lower mandible nearly truncated, and with a deep notch near the end; cere gradually ascending basally (not arched) or nearly straight, not equal to the culmen. Tail short, a little more than half the wing, slightly rounded. Ear-conch small, simple, without operculum; the two ears symmetrical.

There is but one species of this genus, as restricted, in North America. This, however, varies so much with locality that several geographical races have been recognized, of which the following appear pretty well characterized:

- α. *virginianus*. Dark colored, usually with much ochraceous or tawny, the dark markings broad and distinctly defined. *Hab.* Eastern North America, south to Costa Rica.
- β. *subarcticus*. Light colored, with buff instead of ochraceous, the dark markings narrower and less distinct. *Hab.* Western United States and interior of British America; east, occasionally, to Wisconsin and Illinois, south to central and western Mexico.
- γ. *saturatus*. Very dark colored, with the dark markings much broader than in *virginianus*. *Hab.* Northwest coast, from northern California to Sitka; Labrador.
- δ. *arcticus*. Very light colored, the prevailing aspect white, the dark markings very much reduced in extent. *Hab.* Interior of Arctic America.

These races are very strongly characterized in a majority of specimens from any typical locality, but there is a very great amount of individual variation in each. Only two of them (*virginianus* and *subarcticus*) are known to occur in Illinois.

***Bubo virginianus* (Linn.)**

GREAT HORNED OWL.

Popular synonyms. Cat Owl; Booby Owl.

Strix virginiana GMEL. S. N. i, pt. i, 1788, 287.—WILS. Am. Orn. vi, 1812, 52, pl. 50, fig. 1.—

NUTT. Man. i, 1832, 124.—AUD. Orn. Biog. i, 1832, 313; v, 1839, 393, pl. 61.

Strix (Bubo) virginianus SW. & RICH. F. B.-A. ii, 1831, 82.

Bubo virginianus BP. 1838.—AUD. Synop. 1839, 29; B. Am. i, 1840, 143, pl. 39.—CASS. in Baird's B. N. Am. 1858, 49.—BAIRD, Cat. N. Am. B. 1859, No. 48.—COUES, Key, 1872, 202; Check List, 1873, No. 317; 2d ed. 1882, No. 462; B. N. W. 1874, 300 (a. *virginianus*; excl. syn. pt.).—B. B. & R. Hist. N. Am. B. iii, 1874, 60, 62 (var. *virginianus*).—RIDGW. Nom. N. Am. B. 1881, No. 405.

Bubo virginianus atlanticus Cass. Illustr. 1854, 178; in Baird's B. N. Am. 1858, 49.

HAB. Eastern North America, west to edge of Great Plains, south through eastern Mexico to Costa Rica.

SP. CHAR. *Adult male* (No. 12,057, Philadelphia: C. Drexler). Bases of all the feathers yellowish rufous, this partially exposed on the head above and nape, along the scapulars on the rump, and sides of the breast. On the upper surface this is overlaid by a rather coarse transverse mottling of brownish black upon a white ground, the former rather predominating, particularly on the head and neck, where it forms broad ragged longitudinal stripes (almost obliterating the transverse bars), becoming prevalent, or blended anteriorly. The lowermost scapulars, and some of the lower feathers of the middle and secondary wing-coverts, with inconspicuous transverse spots of white. On the secondaries the mottling is finer, giving a grayish aspect, and crossed with eight sharply defined, but inconspicuous, bands of mottled dusky; primary coverts with the ground color very dark, and crossed with three or four bands of plain blackish, the last terminal though fainter than the rest; ground-color of the primaries more yellowish, the mottling more delicate; they are crossed by nine transverse series of quadrate dusky spots. The ground-color of the tail is pale ochraceous (transversely mottled with dusky), becoming white at the tip, crossed by seven bands of mottled blackish, these about equaling the light bands in width; on the middle feathers the bands are broken and confused running obliquely, or in places longitudinally. Outer webs of ear-tufts pure black, inner webs almost wholly ochraceous; eyebrows and lores white, the feathers with black shafts; face dingy rufous; eye very narrowly encircled with whitish; a crescent of black bordering the upper eyelid, and confluent with the black of the ear-tufts. Facial circle continuous black, except across the foreneck; chin, throat and jugulum pure immaculate white, to the roots of the feathers. Beneath, white prevails, but the yellowish rufous is prevalent on the sides of the breast, and shows as the base color wherever the feathers are disarranged. The sides of the breast, sides, and flanks have numerous sharply defined narrow transverse bars of brownish black; anteriorly these are finer and more ragged, coalescing so as to form conspicuous, somewhat longitudinal, black spots. On the lower tail-coverts the bars are distant, though not less sharply defined. The abdomen, medially, is scarcely maculate white. Legs and toes plain ochraceous white.

Wing formula, 2,3-4-1,5. Wing, 14.50; tail, 8.20; culmen, 1.10; tarsus, 2.00; middle toe, 2.00.

Female (No. 12,065, Maryland: R. J. Pollard): General appearance same as the male. Black blotches on head, above, and nape less conspicuous, the surface being mottled like the back, etc.; primary coverts with three well-defined narrow pure black bands; primaries with only six bands, these broader than in the male; secondaries with only five bands; tail with but six dark bands, these very much narrower than the light ones. Tibiæ and tarsi with sparse transverse bars of dusky.

Wing formula, 3,2,4-1=5. Wing, 16.00; tail, 9.00; culmen, 1.20; tarsus, 2.20; middle toe, 2.10.

Young (No. 12,062, Washington, D. C., May 20, 1859: C. Drexler): Wings and tail as in adult. Downy plumage of head and body ochraceous, with detached, rather distinct, transverse bars of dusky.

Although much less numerous than the Barred Owl, this powerful and destructive species is much more plentiful than the farmer or poultry raiser desires. As Dr. Brewer truly remarks (*Hist. N. Am. B.* Vol. III., p. 68), "It is one of the most destructive of the depredators upon the poultry-yard, far surpassing in this respect any of our hawks. All its mischief is done at night, when it is almost impossible to detect and punish it. Whole plantations are often thus stripped in a single season.

"Its flight is rapid and graceful, and more like that of an eagle than one of this family. It sails easily and in large circles. It is nocturnal in its habits, and is very rarely seen abroad in the day, and then only in cloudy weather or late in the afternoon. When detected in its hiding-place by the Jay, Crow, or Kingbird, and driven forth by their annoyances, it labors under great disadvantages, and flies at random in a hesitating flight, until twilight enables it to retaliate upon its tormentors. The hooting and nocturnal cries of the Great Horned Owl are a remarkable feature in its habits. These are chiefly during its breeding season, especially the peculiar loud and vociferous cries known as its hooting. At times it will utter a single shriek, sounding like the yell of some unearthly being, while again it barks incessantly like a dog, and the resemblance is so natural as to provoke a rejoinder from its canine prototype. Occasionally it utters sounds resembling the half-choking cries of a person nearly strangled, and, attracted by the watchfire of a camp, flies over it, shrieking a cry resembling *waugh-h-o-o*. It is not surprising that with all these combinations and variations of unearthly cries, these birds should have been held in awe by the aborigines, their cries being sufficiently fearful to startle even the least timid.

"The mating of this bird appears to have little or no reference to the season. A pair has been known to select a site for their nest, and begin to construct a new one, or seize upon that of a Red-tailed Hawk, and repair it, in September or October, keeping in its vicinity through the winter, and making their presence known by their continued hooting. Mr. Jillson found a female sitting on two eggs in February, in Hudson, Mass.; and Mr. William Street, of Easthampton, in the spring of 1869, found one of their nests on the 3d of March, the eggs in which had been incubated at least a week. If one nest is broken up, the pair immediately seek another and make a renewed attempt to raise a brood. They rarely go more than a mile from their usual abode, and then only for food. Mr. Street's observations have led him to conclude that they mate about February 20, and deposit their eggs from the 25th to the 28th. They cease to hoot in the vicinity of their nest from the time of their mating until their young have left them in June. On the 19th of March, 1872, Mr. Street found two of their eggs containing young nearly ready to hatch."

Bubo virginianus subarcticus (Hoy).**WESTERN HORNED OWL.**

Bubo subarcticus HOY, Proc. Phila. Acad. vi. 1852, 211 (Wisconsin).

Bubo virginianus subarcticus RIDGW. Nom. N. Am. B. 1881, No. 405a.

Bubo virginianus var. *arcticus* (part) COUES, Key, 1872, 202; Check List, 1873, No. 317a.—
B. B. & R. Hist. N. Am. B. i, 1874, 60, 64. [Not *Strix* (*Bubo*) *arcticus* SW. & RICH.]

Bubo virginianus c. *arcticus* COUES, B. N. W. 1874, 301 (excl. syn. pt.).

Bubo virginianus var. *pacificus* (part) CASS. Illustr. 1854, 178; in Baird's B. N. Am. 1858, 49.

Bubo virginianus AUCT. (all citations from western United States, and western and central Mexico).

HAB. Western United States, interior districts of British America, and table lands of Mexico. (Replaced in western Oregon and Washington Territory, and northern coast region of California, by the very dark-colored *B. virginianus saturatus* RIDGW.)

SP. CHAR. Pattern of coloration precisely like that of var. *virginianus*, but the general aspect much lighter and more grayish, caused by a greater prevalence of the lighter tints, and contraction of dark pencilings. The ochraceous much lighter and less rufous. Face soiled white instead of deep dingy rufous.

Male (No. 21,581, Camp Kootenay, Washington Territory, August 2, 1860): Wing, 14.00; tail, 8.60; culmen, 1.10; tarsus, 2.00. Tail and primaries each with the dark bands, nine in number; legs and feet immaculate white. Wing formula, 3, 2=4-5-1.

Female (No. 10,544, Fort Tejon, California): Wing, 14.70; tail, 9.50; culmen, 1.10; tarsus, 2.10; middle toe, 2.00. Tail and primaries each with seven dark bands; legs transversely barred with dusky. Wing formula, 3, 4, 2-5-1, 6.

The above description covers the average characters of a light grayish race of the *B. virginianus*, which represents the other styles in the whole of the western and interior regions of the continent. Farther northward in the interior of the fur countries, the plumage becomes lighter still, some Arctic specimens being almost as white as the Snowy Owl.

The paler-colored race of the Great Horned Owl, like other western and northern birds, sometimes strays to Illinois during its winter migrations. There is a specimen from Pekin, Tazewell Co., in the Museum of Comparative Zoölogy at Cambridge, Mass., which the writer had the opportunity of examining in 1872. Its habits are of course essentially, if not exactly, the same as those of the typical form.

GENUS NYCTEA STEPHENS.

Nyctea STEPHENS, Shaw's Gen. Zool. xiii, pt. ii, 1826, 63. Type, *Strix ermenia* SHAW, — *S. scandiaca* LINN.

GEN. CHAR. Size very large, the head comparatively small, and without obvious ear-tufts. Loral feathers very long, almost concealing the bill, and hair-like feathers of the toes nearly hiding the claws. Lower tail-coverts extending quite to the tip of the tail. Color of adults pure white, relieved by more or less numerous bars of slate-color.

The genus *Nyctea* is closely related to *Bubo*, and has been united with the latter as a subgenus. They seem to be sufficiently distinct, however, as the following differential characters may serve to show:

Bubo. Two to three outer quills with their inner webs emarginated. Ear-tufts well developed; loral feathers not hiding the bill, and the claws and terminal scutellæ of the toes exposed. Lower tail-coverts not reaching the end of the tail.

Nyctea. Four outer quills with their inner webs emarginated. Ear-tufts rudimentary; loral feathers hiding the bill, and claws and entire toes concealed by long hair-like feathers. Lower tail-coverts reaching to the end of the tail.

Nyctea nyctea (Linn.)

SNOWY OWL.

Popular synonyms. Great White Owl; Snow Owl; Ermine Owl.

Strix nyctea LINN. S. N. ed. 10, i, 1758, 93. — WILS. Am. Orn. iv, 1812, 53, pl. 32, fig. 1. — SW. & RICH. F. B. - A. ii, 1831, 88. — NUTT. Man. i, 1832, 116. — AUD. Orn. Biog. iv, 1834, 135; v, 1839, pl. 121.

Surnia nyctea SELBY, 1833. — AUD. Synop. 1839, 21; B. Am. i, 1840, 113, pl. 28.

Strix scandiaca LINN. S. N. ed. 12, i, 1766, 132.

Nyctea scandiaca NEWT. ed. Yarrell's Hist. Brit. B. ed. 4, iii, 1872, 187. — B. B. & R. Hist. N. Am. B. iii, 1874, 61 (var. *scandiaca*). — RIDGW. Nom. N. Am. B. 1881, No. 406. — COUES, B. N. W. 1874, 309; 2d Check List, 1882, No. 479.

Strix arctica BARTR. Trav. 1791, 289 (Pennsylvania).

Nyctea scandiaca var. *arctica* B. B. & R. Hist. N. Am. B. iii, 1874, 61, 70.

Strix nivea THUNB. Sv. Sk. Handling, 1798, 84.

Nyctea nivea GRAY, 1844. — CASS. in Baird's B. N. Am. 1858, 63. — BAIRD, Cat. N. Am. B. 1859, No. 61. — COUES, Key, 1872, 275; Check List 1874, No. 325.

SP. CHAR. *Adult.* Ground-color entirely snow-white, this marked with transverse bars of clear dusky, of varying amount in different individuals.

Male (No. 12,059, Washington, D. C., December 4, 1858; C. Drexler): Across the top of the head, and interspersed over the wings and scapulars, are small transversely cordate spots of clear brownish black, these inclining to the form of regular transverse bars on the scapulars; there is but one on each feather. The secondaries have mottled bars of more dilute dusky; the primaries have spots of black at their ends; the tail has a single series of irregular dusky spots crossing it near the end. Abdomen, sides, and flanks with transverse crescentic bars of clear brownish black. Wing, 16.50; tail, 9.00; culmen, 1.00; tarsus, 1.90; middle toe, 1.30. Wing formula, 3, 2-4-5, 1.

Female (No. 12,053, Washington, D. C., December 4, 1858): Head above and nape with each feather blackish centrally, producing a conspicuously spotted appearance. Rest of the plumage with regular, sharply defined transverse bars of clear brownish black;

those of the upper surface more crescentic, those on the lower tail-coverts, narrower, and more distant. Tail crossed by five bands, composed of detached transverse spots. Only the face, foreneck, middle of the breast, and feet, are immaculate; everywhere else, excepting on the crissum, the dusky and white are in nearly equal amount. Wing, 18.00; tail, 9.80; culmen, 1.10. Wing formula, 3=4, 2-1=5.

Young (No. 36,434, Arctic America, August, 1863; MacFarlane): Only partially feathered. Wings and tail as in the adult female described, but the blackish bars rather broader. Down covering the head and body brownish or sooty slate, becoming paler on the legs.

It is only at irregular intervals, and usually during very severe winters, that this arctic species becomes common in the United States. Such a winter was that of 1876-77, when the Snowy Owl was really abundant along the Atlantic seaboard, as far south as Washington at least, and probably much farther.

GENUS *SURNIA* DUMERIL.

Surnia DUMERIL. Zool. Anal. 1806. 34. Type, *Strix ulula* LINN.

GEN. CHAR. Size medium; form elongated, and general aspect hawk-like. No ear-tufts. Four outer quills with their inner webs sinuated, the third longest; tail nearly as long as the wing, graduated. Ear-conch small, simple, oval. Bill strong, yellow. Eyes small, the iris yellow. Tarsi and toes thickly covered with soft, dense feathers; tarsus shorter than the middle toe. Plumage much more compact and less downy, and remiges and rectrices stiffer and straighter, than in other owls.

The single species of this genus belongs exclusively to the cold-temperate and arctic zones of the Northern Hemisphere, and is circumpolar. Though somewhat hawk-like in its appearance, it is nevertheless a true Owl, and possesses no affinities of structure with the Hawks, any more than other species of *Strigidæ*.

The two races of *S. ulula* may be distinguished as follows:

COMMON CHARACTERS. Above dark vandyke-brown, the head above dotted with white, and the scapulars spotted with the same. Beneath transversely barred with vandyke-brown and white, the bars regular, continuous, and sharply defined. Head and neck with two lateral, and one posterior median, stripes of brownish black, the space between them with white prevailing. Bill and iris yellow. Wing about 9.00; tail, 6.80-7.00.

α. ulula. White spotting prevailing. *Hab.* Palæarctic Region; occasional in western Alaska.

β. caparoch. Brown spotting prevailing. *Hab.* Nearctic Region.

Surnia ulula caparoch (Müll.)**AMERICAN HAWK OWL.**

Popular synonyms. Hudsonian Hawk Owl, or Day Owl.

Strix funerea LINN. S. N. ed. 12, i, 1766, 133 (part, but not of 1758).—SW. & RICH. F. B.—A. II, 1831, 92.—NUTT. Man. i, 1832, 115.—AUD. Orn. Biog. iv, 1834, 350, pl. 378.

Surnia funerea BP. 1838.—AUD. Synop. 1839, 21; B. Am. i, 1840, 112, pl. 27.—RIDGW. Nom. N. Am. B. 1881, No. 407.—COUES, 2d Check List, 1882, No. 480.

Strix caparoch P. ST. MULLER, Suppl. S. N. 1779, 69.

Surnia ulula caparoch STEJNEGER, The Auk, 1884, 363.

Strix hudsonia GMEL. S. N. i, pt. i, 1788, 295.—WILS. Am. Orn. vi, 1812, 64, pl. 50, fig. 6.

Surnia ulula var. *hudsonia* COUES, Key, 1872, 305; Check List, 1874, No. 326; B. N. W. 1874, 311.—B. & R. Hist. N. Am. B. iii, 1874, 75.

Surnia ulula (LINN.) CASS in Baird's B. N. Am. 1858, 64.—BAIRD, Cat. N. Am. B. 1859, No. 62.

HAB. Northern North America, south in winter to northern border of United States (Dakota, Montana, Minnesota, northern Illinois, Massachusetts, etc.).

SP. CHAR. *Adult.* Above rich dark vandyke-brown, darker anteriorly, less intense and more grayish on tail. A narrow streak of brownish black originating over the middle of eye, and extending backward above the upper edge of the ear-coverts, where it forms an elbow passing downward in a broad stripe over the ends of the ear-coverts; confluent with this, at about the middle of the vertical stripe, is another of similar tint, which passes more broadly down the side of the nape; between the last stripes (those of opposite sides) is another or median one of less pure black, extending from the occiput down the nape. Every feather of the forehead, crown, and occiput with a central ovate dot of white; those anterior more circular, on the occiput less numerous and more linear. Between the lateral and posterior nuchal stripes the white prevails, the brown forming irregular terminal and transverse or median spots; these grow more linear toward the back. Interscapulars plain; posterior scapulars variegated with partially concealed large transverse spots of white, the lower feathers with nearly the whole outer webs white, their confluence causing a conspicuous elongated patch above the wing. Rump with sparse, irregular, but generally transverse, spots of white; upper tail-coverts with broader, more irregular bars of the same, these about equal to the brown in width. Lower feathers of the middle and secondary wing-coverts each with an ovoid spot of white on the outer web; secondaries crossed by about three transverse series of longitudinally ovoid white spots (situated on the edge of the feather), and very narrowly tipped with the same; primary coverts with one or two less continuous transverse series of spots, these found only on the outer feathers; primaries with about seven transverse series of white spots, these indistinct except on the five outer feathers, on which those anterior to the emargination are most conspicuous; all the primaries are very narrowly margined with white at the ends. Tail with seven or eight very narrow bands of white, those on the middle feathers purely so, becoming obsolete exteriorly; the last is terminal. Eyebrows, lores, and face grayish white, the grayish appearance caused by the blackish shafts of the feathers; that of the face continues (contracting considerably) across the lower part of the throat, separating a large space of dark brown, which covers nearly the whole throat, from an indistinct collar of the same extending across the jugulum—this collar uniting the lower ends of the auricular and cervical dusky bands, the space between which is nearly clear white. Ground-color of the lower parts white, but everywhere with numerous very regular transverse bars of deep brown, of a tint more reddish than the back, the brown bars rather more than half as wide as the white ones; across the upper part of the breast (beneath the dark gular collar) the white invades very much and reduces the brown, forming a broad lighter belt across the jugulum; below this the brown bars increase in width, their aggregation tending somewhat to a suffusion, giving the white jugular belt better definition. On the legs and toes the bars are narrower, more distant, and less regular.

The whole lining of the wing is barred like the sides. The dark brown prevails on the under surface of the primaries, etc.; the former having transverse, irregular, elliptical spots of white, these touching neither the shaft nor the edge; on the longest quill are seven of these spots; on all they are anterior to the emargination.

Male (No. 49,908, Nulato, Alaska, April 21, 1867; W. H. Dall): Wing formula, 3,4-2,5-6-1. Wing, 9.00; tail, 7.00; culmen, .70; tarsus, (of another specimen; wanting in the present), .90; middle toe, .82.

Female (No. 49,807, Nulato, April 20; W. H. Dall): Wing formula, 3,4-2-5-6-7-1. Wing, 9.00; tail, 6.80; culmen, .70; middle toe, .80.

There is only one valid record known to me of the occurrence of this northern species in Illinois, viz., that by Mr. Nelson in his list of the birds of the northeastern portion of the State (*Bull. Essex Inst.* Vol. VIII., 1876, p. 117), where its capture in Kane county, by Dr. J. W. Velie, the first of September, 1869, is noted.

SUBORDER **FALCONES**.—DIURNAL RAPTORES.FAMILY **FALCONIDÆ**.—FALCONS, KITES, HARRIERS, HAWKS, AND EAGLES.

CHAR. Eyes directed laterally, and eyelids provided with lashes. Toes invariably naked, and tarsus usually naked and scutellate (feathered only in *Aquila* and *Archibuteo*). Outer toe not reversible (except in *Pandion*). Head never with ear-tufts, and never wholly naked (except in the *Vulturinæ*, of the Old World).

The above characters are about the only readily observable points in the external anatomy in which the *Falcones* differ strikingly from the *Striges* and *Sarcorhamphi*, and may serve to distinguish the birds of this family from those of the two others. The osteological characters, however, are more decided and important from a taxonomic point of view, and serve to separate the Diurnal Raptores as a well-defined suborder.

The number of subfamilies into which the family is divisible is an open question. In North America, however, the following may be distinguished:

- A.** Nasal bones almost completely ossified, the nostril being a small orifice, with a conspicuous central bony tubercle; its form nearly or quite circular, or (in *Polyborus*) linear and oblique, with its upper end the posterior one. Scapular process of the coracoid produced forward so as to meet the clavicle. Inferior surface of the supramaxillary bone with a prominent median angular ridge. Superciliary process of the lachrymal consisting of a single piece. *Falconinæ*.
- B.** Nasal bones very incompletely ossified, the nostril being a large, more or less oval, opening, of oblique direction, its lower end being invariably the posterior one; without bony tubercle, and never perfectly circular. Scapular process of the coracoid not produced forward so as to meet the clavicle. Nasal bones incompletely ossified, the nostrils being very large; and without bony rim or tubercle. Inferior surface of the supramaxillary bone without a median ridge. Superciliary process of the lachrymal variable.
 - a.** Outer toe not reversible. Claws of unequal length, and not contracted in width on under surface. Plumage with aftershafts.....*Accipitrinæ*.
 - b.** Outer toe reversible. Claws all of equal length, and narrowed and rounded on their under surface. Plumage without aftershafts.....*Pandioninæ*.

I am not fully satisfied of the advisability of according *Pandion* the rank of a family but am rather inclined to look upon it as constituting a subfamily of a family *Buteonidæ*. The reversible toe and the peculiarly compact plumage, which are apparently its most marked characters, are certainly teleological modifications, fitting it perfectly for its piscatorial habits. In other characters, both anatomical and external, it exhibits numerous points of analogy, if not relationship, to the genera *Elanoides* and *Elanus*, and it seems to me should be placed at least as near to these forms as they are to any of the Buteonine genera.

SUBFAMILY FALCONINÆ.

CHAR. (See page 426.)

The Falconinæ, as here recognized, include not only the true Falcons (*Falconeæ*), but also three other groups, each of which is peculiar to Middle and South America. They may be distinguished as follows:

- A.** Posterior toe abbreviated, very much shorter than the lateral pair; tarsi and toes covered with small hexagonal scales, larger in front.
 - a.** Nostrils a small, round, or oblique opening, with a bony-rimmed margin and central tubercle.
 - 1. Superior tomium with a conspicuous tooth, and inferior tomium with a corresponding notch. Superciliary process of the lachrymal elongated, narrow, reaching nearly across the orbit. Posterior margin of the sternum nearly even, with a pair of large oval foramina. One or two outer primaries with inner webs emarginated near their tips. *Falconeæ*.
 - 2. Tomia without tooth or notch. Superciliary process of the lachrymal abbreviated, reaching only half-way across the orbit. Posterior margin of the sternum with a pair of deep indentations. Three or more outer primaries sinuated near the middle portion *Polyboreæ*.
 - b.** Nostrils a large opening without bony-rimmed margin or central tubercle.
 - 3. Superciliary process of the lachrymal elongated, broad, extending nearly across the orbit. Tomia without tooth or notch. Posterior margin of the sternum as in *Falconeæ*. Four or more outer primaries with inner webs sinuated near the middle portion *Micrastureæ*.
- B.** Posterior toe elongated, almost equal to the lateral pair. Tarsi and toes covered uniformly with thick, rough, imbricated scales.
 - 4. Tomia without tooth or notch. Nostrils as in *Falconeæ* and *Polyboreæ*. Superciliary process of the lachrymal elongated, very broad, reaching nearly across the orbit. Posterior margin of the sternum nearly even, entire, and without foramina. Primaries as in *Polyboreæ* and *Micrastureæ* *Herpetotherææ*.

Of the foregoing groups only two have representatives in North America; the *Falconeæ*, with several members, and the *Polyboreæ* with a single tropical species coming just within our border.

The *Falconeæ* are represented in North America by apparently a single genus, *Falco*, although it may ultimately prove necessary to raise one or more of the supposed subgeneric divisions to full generic rank.

GENUS *FALCO* LINNÆUS.

CHAR. Bill strong, its breadth at the base equal to or exceeding its length; upper outline of the cere on a level with, or rather lower than, the base of the culmen; gonys very convex, the chord of the curve about half that of the culmen. Maxillary tomium with a very prominent "tooth," and mandibular tomium with a corresponding deep notch; the end of the mandible being truncated and the tip of the maxilla compressed and produced into a strongly hooked tip. Nostrils small, circular, and with a conspicuous central bony tubercle. Orbital region bare; projecting superciliary shield bare and conspicuous, though not very prominent. Tail shorter than the wing, more or less rounded, the feathers rather hard. Primaries very strong, elongated, never more than two having their inner webs emarginated, the emargination angular and near the end of the quill. Tarsus never with a single continuous row of transverse scutellæ, either in front or behind. Middle toe very long—never much shorter, and sometimes longer than the tarsus.

The above diagnosis includes the essential characters of all the true Falcons, which apparently constitute a single genus, with, however, a number of more or less strongly marked subgeneric divisions. What are probably distinct genera of *Falconinæ* are *Spizapteryx*, KAUP (South America), and *Ierax* VIGORS (Indian). The latter includes the smallest of the Accipitres, some species being no larger than the European House Sparrow (*Passer domesticus*).

The following groups of North American Falcons are pretty well characterized, and some of them (especially *Tinnunculus*) may be entitled to generic rank:

- A.** Only the first primary with inner web emarginated. First or second quill longest, the first longer than the fourth. Sexes essentially alike in coloration, but young very different from adults.
 - 1. *Hierofalco*. Tarsus longer than middle toe, and feathered far below the knee. First quill shorter than the third. Size large to largest of the family.
 - 2. *Rhynchodon*. Tarsus shorter than middle toe and scarcely feathered below the knee. First quill equal to, or longer than, the third. Size large to medium.
- B.** Two outer primaries with inner webs emarginated. Second or third quill longest, the first shorter than the fourth.
 - a. Basal joint of toes without transverse scutellæ. Tarsus about equal to the middle toe.

3. **Æsalon.** Size small (wing never more than 9 inches). Sexes very different in adult plumage, the young of both sexes resembling the adult female.
- b. Basal joint of toes covered with transverse scutellæ. Tarsus longer than middle toe.
4. **Tinnunculus.** Size small (wing never more than 8 inches in the American species). Sexes very different at all ages, but not differing according to age.* Large transverse scutellæ of feet interrupted at lower extremity of tarsus and extreme base of toes. Tarsus much longer than middle toe. Bill small, the cere on the top less than one fourth the culmen.
5. **Rhynchofalco.** Size medium (wing more than 9 inches). Sexes alike in color, and young not essentially different from adults. Large scutellæ of feet uninterrupted at base of toes. Tarsus but little longer than middle toe. Bill very robust, the cere on top about one third the culmen. (Tropical, north to Texas.)

SUBGENUS *Hierofalco* CUVIER.

Hierofalco CUV. Reg. An. 1817, 312. Type, *Falco candicans* Gmel., = *F. islandus* BRUNN. *Gennaia* KAUPE, Isis, 1847, 69. Type, *Falco jugger* GRAY.

Synopsis of North American Species.

1. **F. gyrfalco.** Feathering of the tarsus extending around on to the posterior face, where the narrow naked strip is nearly or quite concealed. *Male.* Wing, 13.00–15.80; tail, 7.50–10.00. *Female.* Wing, 15.75–17.00; tail, 9.50–11.50. Colors extremely variable, the extremes being bluish or brownish gray barred or striped with dusky on the upper parts, and uniform dark sooty slate, with few or no light markings.
2. **F. mexicanus.** Feathering of the tarsus confined almost wholly to the anterior face, the posterior face entirely naked. *Male.* Wing, 11.80–12.50; tail, 6.40–8.00. *Female.* Wing, 13.25–14.30; tail, 8.00–9.00. *Adult male.* Above light brown, barred anteriorly with pale fulvous and posteriorly with pale bluish gray; top of head grayish brown, streaked with dusky. *Adult female.* Above brown, without distinct bars, but feathers bordered with paler rusty brown. *Young.* Above brown, feathers distinctly margined with light rusty; beneath creamy white, the axillars and broken flank-patch dusky brown; chest, etc., streaked with dark brown.

Falco mexicanus Schleg.

PRAIRIE FALCON.

Popular synonym. American Lanner Falcon.

Falco mexicanus "LICHT." SCHLEG. Abh. Geb. Zool. 1841, 15.—COUES, Key, 1872, 213; Check List, 1874, No. 342; 2d ed. 1882, No. 502.

Falco polyagrus (part) CASS. Proc. Phil. Acad. vi, 1854, 450; Illustr. B. Cal. etc. 1853, 88, pl. 16 (light fig.); in BAIRD'S B. N. Am. 1858, 12.—BAIRD, Cat. N. Am. B. 1859, No. 10.

Falco lanarius var. *polyagrus* B. & R. Hist. N. Am. B. iii, 1874, 123.

Hierofalco mexicanus polyagrus RIDGW. Nom. N. Am. B. 1881, No. 412.

HAB. Western United States and table-lands of Mexico; north to Washington Territory and Dakota, east to Illinois (prairie districts), Indian Territory, etc.

* In the European Kestrel (*F. tinnunculus* Linn.) and its Old World allies, the young male is said to resemble the adult female in coloration.

SP. CHAR. Adult male (No. 59,063, U. S. Nat. Mus., Wahsatch Mts., Utah, May 23, 1868: L. E. Ricksecker). Above cinereous-drab, becoming gradually paler and more bluish posteriorly, barred, indistinctly, everywhere with a more dusky tint, the shafts of all the feathers blackish; anteriorly the darker shade predominates, while posteriorly the bluish prevails; on the anterior portions the light bars are much restricted in width, and of a more ochraceous tint. Tail plain, very pale, ashy drab, narrowly tipped with reddish white, this changing to pale rusty on the middle pair; the concealed portion of the feathers outside the shaft show obsolete or faint traces of darker bars, which on the middle pair are apparently about eleven in number. On the inner webs the paler bars become broader than the darker ones, and incline to ochraceous in tint, the lateral feather being edged externally with this color. Primaries plain ashy drab, with a hoary tinge, growing insensibly darker terminally, and with a slightly paler apical margin. Head and neck above, dark umber-brown, with conspicuous shaft-streaks of black. Lores and broad superciliary stripe (somewhat interrupted above the eyes) white, finely and sparsely streaked, the two stripes confluent across the occiput; a broad heavy "mustache" from the lores and rictus downward and obliquely backwards, across the maxilla, and a wider posterior stripe, like the crown. Beneath continuous white, with a faint ochraceous tinge on the abdomen and crissum; abdomen and sides of the breast with a few scattered, small, ovate spots of vandyke-brown; sides transversely spotted with vandyke-brown, the spots coalesced into a broken patch on the flanks; outside of the tibiae with transverse spots of the same. Axillars plain clear vandyke-brown, with a few nearly obsolete rusty specks near their ends; lining of the wing clear white, the feathers with central spaces of dusky brown, which toward the edge become aggregated into a longitudinal patch; inner webs of the primaries with broad transverse spots of white, which reach nearly to the shaft; they are about thirteen in number on the longest quill. Feet yellow; base of the bill tinged with the same. Wing, 12.00; tail, 7.50; tarsus, 1.90; middle toe, 1.70.

Adult (?) female (No. 18,258, Fort Buchanan, New Mexico: Dr. Irwin): Above continuous umber-drab, growing gradually lighter posteriorly, the tail being pale drab; no transverse bars (except a few concealed ones on back and secondaries), but all the feathers faintly bordered with paler rusty brown, these edgings on upper tail-coverts almost white. Tail tipped with creamy white, and with many transverse spots or broad bars of the same on inner webs, outer feather irregularly skirted with the same, and all decidedly paler than the ground color along their edges. Head as in the male, but forehead white, and superciliary stripe more continuous. Breast and abdomen with longitudinal lanceolate or cuneate streaks of dark vandyke-brown; patch of same on flanks, more continuous than in the male; axillars unvariegated clear dark vandyke brown, longest primary with eleven transverse spots of white; posterior outer face of tibiae with sagittate spots of dark brown. Wing, 14.25; tail, 8.00; tarsus, 2.10; middle toe, 2.00.

Young male (No. 32,207, South Fork of Platte, July 19, 1858; C. S. McCarthy): Above darker umber than the last, each feather distinctly bordered terminally with rusty ochraceous. Beneath with a deeper cream-colored tinge, streaks blacker; flank-patch more conspicuous and uniform; axillars unvariegated dusky. Wing, 13.25; tail, 7.25.

Adult males. A specimen from Gilmer, Wyoming Territory, (No. 60,176, U. S. Nat. Mus.: H. R. Durkee), is very similar to the Wahsatch example described above, but being in more worn plumage the markings are not so well defined. The bars are entirely obsolete on the rump, where, however, the bluish ashy is relieved by very sharp black shaft-streaks; on the exposed surface of the closed tail, the tint is very pale brownish ash, and the bars are almost completely obliterated. The tints generally partake of a dull ashy character, with little brown. It measures, wing,

11.80; tail, 7.50; culmen, .75; tarsus, 2.15; middle toe, 1.65. Cere, base of both mandibles, eyebrow, bare orbital region, tarsi and toes, clear yellow.

Adult (?) females. A female obtained by Captain Bendire at Camp Harney, Oregon, measured, when fresh, 18.50 inches in length; wing, 13.25; tail, 8.00; weight 4 lbs. 12 oz. "Base of bill and cere sky-blue; tarsi and toes light greenish yellow."

Young males. A young male obtained by me November 29, 1867, at Carson City, Nevada, measured as follows before being skinned: Total length, 17 inches; extent, 37.75; wing, 12.25; tail, 7.50; weight only 1½ lbs. Bill, very fine bluish white, shading terminally into bluish slate, the point black; cere, rictus, and bare orbital region, greenish white; iris, vivid vandyke-brown; tarsi and toes pale yellowish, with a tinge of verdigris-green.

This fine falcon is a mere straggler to Illinois, having been observed on but few occasions. A specimen was obtained at Rock Island, by Mr. I. D. Sargent, of Philadelphia, and by him presented to the Academy of Natural Sciences in that city, while it has been observed on two occasions by the writer, once near Mount Carmel and once in Lawrence county (near the town of Bridgeport), both during the month of September, 1871.

SUBGENUS *Rhynchodon* NITZSCH.

Rhynchodon NITZSCH, Pterylog. 1840, 7, 8. Type, *Falco peregrinus* LATH.

The essential characters of this subgenus having been given on page 428, there is no necessity for their repetition here. There is but one species in North America, the circumpolar *F. peregrinus*, or Peregrine Falcon.

Falco peregrinus anatum (Bonap.)

DUCK HAWK.

Popular synonyms. American Peregrine; Great-footed Falcon; Black-capped Falcon.

Falco peregrinus WILS. Am. Orn. ix, 1814, 120, pl. 76.—NUTT. Man. i, 1832, 53.—AUD. Orn.

Biog. i, 1832, 85; v, 1839, 365, pl. 16; Synop. 1839, 16; B. Am. i, 1840, 84, pl. 20.

Falco navius GMEL. S. N. i, pt. i; 1788, 271.

Falco peregrinus navius RIDGW. Nom. N. Am. B. 1851, No. 414.

Falco anatum BONAP. Comp. List, 1838, 4.—CASS. in Baird's B. N. Am. 1858, 7.—BAIRD,

Cat. N. Am. B. 1859, No. 5.

Falco communis var. *anatum* RIDGW. in B. B. & R. Hist. N. Am. B. iii, 1874, 128, 132.

Falco communis c. anatum COUES, B. N. W. 1874, 341.

Falco nigriceps CASS, Proc. Phil. Acad. vi, 1853; 450; Illust. B. Cat. etc. 1854, 87; in Baird's B. N. Am. 1858 8; ed. 1860, pl. 11.—BAIRD, Cat. N. Am. B. 1859, No. 6.
Falco communis "GMEL." COUES, Key, 1872, 213; Check List, 1874, No. 343.

HAB. Whole of America.

SP. CHAR. *Adult male* (No. 43,134, U. S. Nat. Mus., Fort Resolution, Brit. N. Am., June: J. Lockhart). Upper parts dark bluish plumbeous, approaching black anteriorly, but on rump and upper tail-coverts becoming bluish plumbeous ash. On the head and neck the continuous plumbeous black covers all the former except the chin and throat, and the back portion of the latter; an invasion or indentation of the white of lower parts up behind the ear-coverts separates the black of the cheeks from that of the neck, throwing the former into a prominent angular patch; forehead and lores grayish. All the feathers above (posterior to the nape) with transverse bars of plumbeous black, these most sharply defined posteriorly, where the plumbeous is lightest. Tail black, more plumbeous basally, very faintly paler at the tip, and showing ten or eleven transverse narrow bands of plumbeous, these most distinct anteriorly; the bars are clearest on inner webs. Alula, primary and secondary coverts, secondaries and primaries, uniform plumbeous black, narrowly whitish on terminal margin, most observable on secondaries and inner primaries. Lower parts white, tinged with delicate cream-color, this deepest on the abdomen; sides and tibiae tinged with bluish. Chin, throat and jugulum immaculate; the breast, however, with faint longitudinal shaft-streaks of black; sides, flanks and tibiae distinctly barred transversely with black, about four bars being on each feather; on the lower tail-coverts they are narrower and more distant; on the abdomen the markings are in the form of circular spots; anal region barred transversely. Lining of the wing (including all the under coverts) white tinged with blue, and barred like the sides; under surface of primaries slaty, with elliptical spots or bars of creamy white on inner webs, twelve on the longest. Wing formula, 2-1-3. Wing, 12.25; tail, 6.00; tarsus, 1.60; middle toe, 1.85; outer, 1.40; inner, 1.20; posterior, .80; culmen, .80.

Adult female (No. 13,077, Liberty Co., Georgia: Professor J. L. Leconte): Like the male, but ochraceous tinge beneath deeper; no ashy wash; bands on the tail more sharply defined, about ten dark ones being indicated; outer surface of primaries and secondaries with bands apparent; tail distinctly tipped with ochraceous white. Inner web of longest primary with thirteen more reddish transverse spots. White of neck extending obliquely upward and forward toward the eye, giving the black cheek patch more prominence. Markings beneath as in the male. Wing formula the same. Wing, 14.50; tail, 7.00; tarsus, 1.95; middle toe, 2.10; culmen, .95.

Young male (No. 53,193, Truckee River, Nevada, July 24, 1867; R. Ridgway): Above plumbeous black, tail more slaty. Every feather broadly bordered terminally with dull cinnamon; these crescentic bars becoming gradually broader posteriorly, narrower and more obsolete on the head above. Tail distinctly tipped with pale cinnamon, the inner webs of feathers with indistinct transverse spots on the same, these touching neither the edge nor the shaft; scarcely apparent indications of corresponding spots on outer webs. Region round the eye, and broad "moustache" across the cheeks, pure black, the latter more conspicuous than in the older stages, being cut off posteriorly by the extension of the cream-color of the neck nearly to the eye. A broad stripe of pale ochraceous running from above the ear-coverts back to the occiput, where the two stripes of opposite sides nearly meet. Lower parts purplish cream-color, or rosy ochraceous white, deepest posteriorly; jugulum, breast, sides, flanks, and tibiae with longitudinal stripes of plumbeous black, these broadest on flanks and abdomen, and somewhat sagittate on the tibiae; lower tail-coverts with distant transverse bars. Lining of the wing like the sides, but the markings more transverse; inner web of longest primary with nine transverse purplish ochre spots. Wing formula, 2-1-3. Wing, 12.50; tail, 7.00. Length, 16.50; expanse, 39.25. Weight, 1½ lbs. Basal half of the bill pale bluish white, cere rather darker; terminal half (rather abruptly) slate-color, the tip deepening into black; iris very dark vivid vandyke-brown; naked orbital space pale bluish white, with a slight greenish tint; tarsi and toes lemon-yellow, with a slight greenish cast; claws jet-black.

It is extremely uncertain how many of the so-called "species" of Peregrine Falcon which pass current should be referred to *F. peregrinus* as geographical races, and it is equally doubtful how many of the latter should be recognized. I have yet to see a North American Peregrine which I could not distinguish readily from European examples, the chest being usually either immaculate or else very inconspicuously streaked in the American bird; but European writers say that they have inspected American specimens which had the breast as distinctly streaked as those from Europe. It is possible, however, that their remarks are based upon specimens of *F. pealei*, which has the chest so heavily marked as to be sometimes even spotted, and which differs so much from typical *peregrinus* that it may eventually prove to be a distinct species, though I am inclined to regard it as one of several geographical races of a widely distributed parent stock, to which I would also refer *F. cassini* Sharpe, of the southern extremity of South America.

In the adult plumage the principal variation is in the extent and disposition of the bars beneath. In most individuals they are regularly transverse only laterally and posteriorly, those on the belly being somewhat broken into more irregular cordate spots, though always transverse; in no American specimen that I have seen, are they as continuously transverse as in a male (No. 18,804) from Europe, which, however, in this respect, may form an exception to most European examples.

Very old males (as 49,790, Fort Yukon; 27,188, Moose Factory, (type of Elliott's figure of *F. peregrinus*, in Birds of America); and 42,997, Spanishtown, Jamaica) lack almost entirely the reddish tinge beneath, and have the posterior portions strongly tinged with blue.

The fact that this noble bird breeds in hollow trees in various parts of the Mississippi Valley is a comparatively recent discovery, being first announced by Col. N. S. Goss in the "Nuttall Bulletin" for January, 1878.

In the spring of 1878, the writer found several pairs nesting in sycamore trees in the neighborhood of Mt. Carmel. Three nests were found in the immediate vicinity of the town. All were placed in cavities in the top of very large sycamore trees, and were inaccessible. One of these trees was felled, however, and measurements with a tape-line showed the nest to have been eighty-

nine feet from the ground, its location being a shallow cavity, caused by the breaking off of the main limb, the upper part of which projected over sufficiently to form a protection from the sun and rain.

SUBGENUS *Æsalon* KAUP.

Æsalon KAUP, Sk. Ent. Eur. Thierw. 1829, 40. Type *Falco æsalon* GMEL.

The species of this subgenus may be distinguished by the following characters:

COMMON CHARACTERS. *Adult males* plumbeous blue above, the feathers with dusky shafts; tail more or less banded with black, and tipped with whitish. Beneath whitish, buffy, or light rusty, striped with brownish. *Adult females*. Above brownish, with darker shaft-streaks. Tail usually with five to eight, more or less distinct, lighter bands (all but the terminal one sometimes obsolete in *F. suckleyi*). Beneath whitish, buffy, or ochraceous, striped with dusky or brownish. *Young (both sexes)*. Similar to the adult female, but colors softer, more blended.

- A.** Tail of adult male with six imperfect blackish bands, besides the subterminal broad black zone. Adult female and young with about eight light bands, including the terminal one.

(*F. regulus*, of Europe and Northern Asia.)

- B.** Tail of adult male with only three or four blackish bands, besides the broader subterminal one. Adult female and young never with more than six light bands, including the terminal one.

1. **F. richardsoni.** *Adult male*. Above pearl-blue or pale ashy blue, the crown more or less tinged with ochraceous. Tail crossed by five dark and six light bands, the latter more or less mixed or clouded with white; outer webs of primaries distinctly spotted with light bluish gray, the inner web of the longest with eight white spots. "Mustache" obsolete, or but very slightly indicated. Lower parts buff, or buffy white, the tibiae and a nuchal collar more ochraceous. Breast, etc., rather broadly striped with brownish. Wing, 7.70-8.60; tail, 5.00-6.00; culmen, .50-.60; tarsus, 1.42-1.55; middle toe, 1.20-1.30. *Adult female*. Above earthy brown, more or less distinctly marked with transverse spots of a lighter shade. Tail with six very distinct and perfectly continuous whitish bands; secondaries distinctly banded with ochraceous, and outer webs of primaries distinctly spotted with a lighter tint of the same. Beneath white or buffy, the breast, etc., broadly striped with light brown. Wing, 8.50-9.00; tail, 6.00-6.30; culmen, .55-.58; tarsus, 1.55-1.65; middle toe, 1.35-1.40; *Young*. Similar to the adult female, but more decidedly buffy below, the upper parts more or less tinged with rusty.

2. **F. columbarius.** *Adult male*. Above much darker plumbeous. Tail crossed by not more than four dark or five light bands (including terminal one). *Adult female and young*. Very variable in color, but tail never with more than four dark or five light bands, including the whitish tip.

α. columbarius. *Adult female and young* with distinct light spots on inner webs of primaries, and the light bands on the tail more or less distinct. *Male*: Wing, 7.20-7.90; tail, 4.90-5.50; culmen, .48-.50; tarsus, 1.30-1.40; middle toe, 1.15. *Female*: Wing, 8.00-8.55; tail, 5.50-6.00; culmen, .55-.60; tarsus, 1.55-1.60; middle toe, 1.35-1.40.

β. suckleyi. *Adult female and young*, without distinct spots on inner webs of primaries, or light bands on tail (except the whitish tip), these markings being sometimes wholly obsolete. General color much darker, the lower parts even with dusky predominating. *Male*: Wing, 7.35-7.70; tail, 5.25-5.60; culmen, .48-.50; tarsus, 1.30-1.45; middle toe, 1.20. *Female*: Wing, 8.25-8.50; tail, 5.70-5.80; culmen, .55-.60; tarsus, 1.50-1.60; middle toe, 1.35-1.40. (*Adult male unknown*)

Falco columbarius (Linn.)**PIGEON HAWK.**

Popular synonyms. American Merlin; Little Corporal (AUDUBON).

Falco columbarius LINN. S. N. ed. 10, i, 1758, 90; ed. 12, i, 1766, 123.—WILS. Am. Orn. ii, 1910, 107, pl. 15, fig. 3.—AUD. Orn. Biog. i, 1831, 466; B. Am. i, 1839, 88, pl. 21; Synop. 1839, 16.—NUTT. Man. i, 1832, 60.—CASS. in Baird's B. N. Am. 1838, 9, (s. g. *Hypotriorchis*).—COUES, Key, 1872, 214; Check List, 1874, No. 344; 2d ed. 1882, No. 505; B. N. W. 1874, 345. *Hypotriorchis columbarius* GRAY, 1844.—BAIRD, Cat. N. Am. B. 1859, No. 7. *Æsalon columbarius* KAUP, Contr. Orn. 1850, 54.—RIDGW. Nom. N. Am. B. 1851, No. 417. *Falco (Æsalon) lithofalco* var. *columbarius* B. B. & R. Hist. N. Am. B. iii, 1874, 143, 144. *Falco temerarius* AUD. Orn. Biog. i, 1831, 331; B. Am. pls. 75, 92.

HAB. Whole of North America, migrating in winter over whole of Middle America and northern South America (as far as Ecuador and Venezuela), and throughout West Indies.

SP. CHAR. *Adult male.* Above cinereous, varying in shade, but generally of a slaty bluish cast; each feather with a distinct shaft-streak of black, these lines most conspicuous on the head above. Tail with a very broad subterminal band of black, about one inch in width; there are indications of three other bands, their continuity and distinctness varying with the individual, but generally quite conspicuous, and each about half the width of the subterminal one; the latter is succeeded by a terminal one of white, about three sixteenths of an inch in width, sometimes broader; on the lateral feathers the black bands are always conspicuous, being in the form of transverse oblong spots, crossing the shaft, but less extended on the outer web, which is often immaculate except at the end, the broad terminal band always extending to the edge of the feather. Primaries dusky black, margined terminally more or less distinctly with whitish (sometimes fading on the edge only); on the inner web is a series of about eight transverse oval spots of white, and generally corresponding to these are indications of bluish ashy spots on the outer web. Beneath white, this purest on the throat, which is immaculate; there is generally a more or less strong tinge of fulvous beneath, this always prevalent on the tibiae, and on a distinct collar extending round the nape, interrupting the blue above; the tibiae frequently incline to ochraceous rufous. Lateral portions of the head with fine streaks of dusky, these thickest on the upper edge of the ear-coverts, leaving a distinct whitish superciliary streak, those of opposite sides meeting on the forehead. Breast, upper part of the abdomen, sides, and flanks, with longitudinal stripes of umber, each with a shaft-streak of black; on the flanks their shape is modified, here taking the form of spots running in chain-like series; tibiae with narrower and darker streaks; lower tail-coverts with narrow central streaks like those on the tibiae. Frequently there is a strong bluish shade on flanks and lower tail-coverts, sometimes replacing the brown of the spots on the former, and eluding in a similar form the latter. Length about, 11.00; extent, 23.75; wing, 7.20-7.90; tail, 4.90-5.50; culmen, .48-.50; tarsus, 1.30-1.40; middle toe, 1.15-1.25.

Adult female. Pattern of coloration as in the male, but the colors different. The blue above replaced by dark umber-brown with a plumbeous cast, and showing more or less distinct darker shaft-lines; those on the head above very broad, giving a streaked appearance; white spots on inner webs of primaries more ochraceous than in the male. Tail dark plumbeous brown, shading into blackish toward end, with five rather narrow ochraceous or soiled white bars, the first of which is concealed by the upper coverts, the last terminal. White beneath less tinged with reddish than in the male, the tibiae not different from the other portions; markings beneath as in the male. Total length, about 12.50-13.25; extent, 20.50-22.00; wing, 8.00-8.55; tail, 5.50-6.00; culmen, .55-.60; tarsus, 1.55-1.60; middle toe, 1.35.

Young. Above plumbeous brown, tinged with fulvous on head, and more or less washed with the same on the rump; frequently the feathers of the back, rump, scapu-

lars, and wings pass into a rusty tinge at the edge; this color is, however, always prevalent on the head, which is conspicuously streaked with dusky. Tail plumbeous dusky, darker terminally, with five regular light bars; those towards the base ashy, as they approach the end becoming more ochraceous; these bars are more continuous and regular than in the adult female, and are seen conspicuously on the middle feathers. Primaries dusky, passing on edge (terminally) into lighter; spots on the inner webs broader than in the female, and pinkish ochre; outer webs with less conspicuous corresponding spots of the same. Beneath soft ochraceous, marked as in adult female, but stripes less sharply defined; tibiae not darker than abdomen.

This little Falcon, like the Peregrine, is resident, locally, throughout the State, but is comparatively rare. Like its larger relative, it nests in cavities of large trees in the forest, but where suitable cliffs occur it also builds its nest among rocks.

"This Hawk," says Dr. Brewer,* "is remarkable for its rapid flight and its courage and enterprise in attacking birds as large or even larger than itself, though generally it only preys upon smaller birds, such as Grakles, Red-winged Blackbirds, Robins, and Pigeons."

SUBGENUS *Tinnunculus* VIEILLOT.

Tinnunculus VIEILL. Ols. Am. Sept. I, 1807, 39. Type *Falco tinnunculus* LINN.

Pacilornis KAUP, Nat. Syst. 1823, 103. Type *Falco sparverius* LINN.

Falco sparverius (Linn.)

AMERICAN SPARROW HAWK.

Popular synonyms. American Kestrel; Little Rusty-crowned Falcon.

Falco sparverius LINN. S. N. ed. 10, i, 1753, 90; ed. 12, i, 1766, 123.—WILS. Am. Orn. ii, 1810, 117, pl. 16, fig. 1 (male), pl. 23, fig. 2 (female).—SW. & RICH. F. B.-A. ii, 1831, 31, pl. 24.

—AUD. B. Am. fol. ed. 1831, pl. 22; oct. ed. i, 1840, 90, pl. 22; Orn. Biog. ii, 1831, 246, pl. 142.—NUTT. Man, i, 1832, 58.—CASS. in Baird's B. N. Am. 1853, 13, (s. g. *Tinnunculus*).

—COUES, Key, 1871, 15; Check List, 1874, No. 346; 2d ed. 1882, No. 508; B. N. W. 1874, 349.

Falco (Tinnunculus) sparverius B. B. & R. Hist. N. Am. B. iii, 1874, 169 (var. *sparverius*).

Tinnunculus sparverius VIEILL. 1807.—BAIRD, Cat. N. Am. B, 1859, No. 13.—RIDGW. Nom. N. Am. B. 1881, No. 420.

Falco isabellinus SWAINS. Anim. in Menag. 1879, 281 (Cayenne).

Falco (Tinnunculus) sparverius var. *isabellinus* B. B. & R. Hist. N. Am. B. iii, 1874, 167, 171.

Tinnunculus sparverius isabellinus RIDGW. Nom. N. Am. B. 1881, No. 420a.

Falco sparverius isabellinus COUES, 2d Check List, 1882, No. 509.

SP. CHAR. *Adult male* (No. 12,025, Washington, D. C.: W. Wallace). Forehead, lateral and posterior regions of the crown, occiput, and wings, bluish ash. Crown, nape, scapulars interscapulars, rump, upper tail-coverts, and tail, fine cinnamon-rufous; scapulars and back barred with black, the bars broadest and most conspicuous posteriorly. Tail tipped with white, and with a broad, sharply defined subterminal zone of black, about one inch in width; lateral feather, with outer web and terminal half of inner ashy white, the latter with one or two distinct transverse spots of black anterior to the terminal one. .. Wing-

* *Hist. N. Am. B. iii*, pp. 150, 151.

coverts with more or less conspicuous cordate spots of black, rather sparsely distributed; basal two thirds of secondaries, and whole of primaries, deep black,—the latter whitish around the terminal margin, and with nine transverse bands of white on inner web of longest (second), the white rather exceeding the black, the points of which do not reach the edge of the feather; lining of the wing white, with conspicuous cordate spots of black. Front and superciliary region more hoary than the forehead, almost approaching white. Whole lateral region of the head, with chin, throat, and lower parts, white; the neck, breast, and sides, however, with a deep tinge of ochraceous, the tint hardly approaching the depth of color seen on the nape. On the head there are (considering both sides) seven black spots,—the first originating in front of the bare anteorbital space (leaving the lores white), and extending in a stripe downward across the malar region, forming a conspicuous "mustache;" the second crosses the tips of the ear-coverts, in the form of an oblong transverse spot; the third is smaller, situated as far behind the last as this is posterior to the "mustache," crossing the side of the neck. The last is an odd nuchal spot, separating the ash of the occiput from the rufous of the hind-neck. Breast and sides with circular or cordate spots of pure black, these varying in size, but generally larger on the sides. Other lower parts immaculate. Wing formula, 2=3-4, 1. Wing, 7.10; tail, 4.50; tarsus, 1.32; middle toe, .93; culmen, .45.

Adult female (No. 10,751, Fort Bridger, Utah: C. Drexler). Blue above confined to the head, which shows rufous patch as in the male; entire upper parts rufous, lighter and less purplish than in the male, everywhere barred with black. Tail with twelve sharply defined narrow bars of black, the subterminal broadest, and about three eighths of an inch in width. Longest primary with eleven transverse spaces of pale rufous, nearly twice as wide as the dusky ones, which scarcely touch the edge. Beneath yellowish white, paler than in the male; breast and sides with rusty longitudinal spots. Head as in the male. Wing, 7.60; tail, 5.20; tarsus, 1.50; middle toe, .90; bill, .50. Wing formula, 2=3-4-1.

Young male (No. 5,581, Medicine Bow Creek, Nebraska, August 7, 1856: W. S. Wood.) Exactly like the adult male, but with rufous darker, approaching to chestnut; spots beneath inclining to a tear-shaped form, and, though more numerous, not so well defined as in the adult; also rufescent tinge beneath more general; blue of the wings with scarcely any spots; white terminal band of tail tinged with rufous. Sometimes the two or three outer feathers are clouded with ash, and possess indication of bars, formed of irregular black spots.

Young female (No. 40,520, Fort Rice, Dakota: S. M. Rothhammer). Generally like the adult, but with rufous above darker, approaching ferruginous; the bars everywhere broader, and purer black; rufous vertical patch streaked centrally with black; spots beneath larger, darker, approaching reddish umber.

VARIATIONS. While perhaps a majority of specimens of this species agree very nearly with those described above, there is nevertheless a very wide range of individual variation, in each plumage. Specimens from the eastern United States are apparently more variable in their markings than western examples, and this is true of any locality within that region. The extreme variation reached in this portion of the continent is that plumage upon which Swainson based his *Falco isabellinus*, which is characterized (1) by the uniform dark plumbeous pileum, the usual rufous crown-spot being absent or much reduced in size; (2) by the whole breast and jugulum, in the adult male, being immaculate deep ochraceous or buff, the few spots, should any be present, confined to the sides. The females of this style are much darker colored than those in the normal

plumage, and, like the males, usually lack the rufous crown-patch.

The Sparrow Hawk is the American representative of the Kestrel of Europe (*Tinnunculus tinnunculus*), a considerably larger but otherwise very similar bird. The common note is peculiar, consisting of a protracted, not unmusical chatter, difficult to describe, but when once heard always to be recognized afterward. Neglected fields with old dead trees are the favorite abode of the Sparrow Hawk, for the lofty naked branches are a convenient and commanding position from which to survey the surroundings, while the knot-holes or deserted excavations of the larger woodpeckers afford cosy and secure houses for their nests. Upon a lofty branch the Sparrow Hawk may be seen resting or patiently "waiting for something to turn up"; sitting quietly, in an upright position, sometimes for an hour or more. Should a thoughtless mouse steal incautiously from her nest for a ramble, the quick eye of its watchful enemy detects it. He first dives from his perch and flies directly over the object in view. Should the latter be quiet for a while, the hawk poises itself in mid-air, its fan-like tail widely expanded, and its head lowered, waiting for a favorable opportunity to descend upon its intended victim. But the mouse is usually rather restless, running first to one point, then, after a short halt, zigzagging off to another. The hawk, however, follows every movement, shooting rapidly off and hovering temporarily exactly to correspond with the movements of the unsuspecting mouse. When thus engaged it is sure to attract attention, and this characteristic of the species is doubtless familiar to sportsmen as well as to all people used to country scenes. When it alights, the Sparrow Hawk plunges upon the branch, closes its wing with a nervous snap, and tilts its expanded tail up and down, at the same time turning its head watchfully from side to side.

Instances have been known where this hawk deposited its eggs in a deserted crow's nest; but it is seldom that they expose them in this manner. There is usually no nest, but the eggs are laid upon the rubbish at the bottom of the hole.

The eggs are generally five in number, but range from three to seven, the latter number, however, being but seldom found in one nest. In shape they are nearly spherical, but little difference in size and contour being observable in the two ends; their length ranges from 1.32 to 1.48 inches, the average being about 1.38; and in breadth they measure from 1.08 to 1.20 inches, with an average diameter of 1.13. The ground color of the eggs varies from white

to a rather deep buff or cream-color, which is relieved by a greater or less amount of brown and reddish spotting; the spots are nearly always small, and usually rather scattered, but sometimes they are thickly sprinkled over the entire surface; the markings are generally of several shades of rusty brown, but the tint varies from umber to reddish chestnut.

SUBFAMILY PANDIONINÆ.—THE OSPREYS.

CHAR. Outer toe reversible. Claws very large and strongly curved, of equal length, their under side narrowed and rounded. Plumage without aftershafts, that of the thighs very close and compact, the feathers short.

The above characters separate the Ospreys from all other diurnal Accipitres. (See page 426.) The subfamily includes a single genus, *Pandion*, which occurs throughout the temperate and tropical portions of the globe.

GENUS PANDION SAVIGNY.

Pandion SAVIGN. Desc. de l'Egypte, 1809, 272. Type *Falco haliaëtus* LINN.

GEN. CHAR. Bill inflated, the cere depressed below the arched culmen; end of bill much developed, forming a strong, pendent hook. Anterior edge of nostril touching edge of cere. Whole of tarsus and toes (except terminal joint) covered with rough, somewhat imbricated, projecting scales. Outer toe versatile; all the claws of equal length. In their shape, also, they are peculiar; they contract in thickness to their lower side, where they are much narrower than on top, as well as perfectly smooth and rounded; the middle claw has the usual sharp lateral ridge, but it is not very distinct. All the toes perfectly free. Tibiæ not plumed, but covered compactly with short feathers, these reaching down the front of the tarsus below the knee, and terminating in an angle. Primary coverts hard, stiff, and acuminate, almost as much so as the quill themselves; third quill longest; first longer than fifth; second, third, and fourth sinuated on outer webs; outer three deeply emarginated, the fourth sinuated on inner webs.

Pandion haliaëtus carolinensis (Gmel.)

AMERICAN OSPREY.

Popular synonyms. Fish Eagle; Fish Hawk.

Falco carolinensis GMEL. S. N. i, 1788, 263.

Pandion carolinensis AUD. B. Am. 1831, pl. 81; Orn. Biog. i, 1831, 415.—CASS. in Baird's B. N. Am. 1858, 44.—BAIRD, Cat. N. Am. B. 1859, No. 44.

Pandion haliaëtus var. *carolinensis* RIDGW. 1870.—B. & R. Hist. N. Am. B. iii, 1874, 183, 184.

Pandion haliaëtus carolinensis RIDGW. Nom. N. Am. B. 1881, No. 425.

Pandion haliaëtus AUD. B. Am. i, 1840, 64, pl. 15; Orn. Biog. i, 1831, 415.—COUES, Key, 1872, 219; Check List 1874, No. 360; 2d ed. 1882, No. 530; B. N. W. 1874, 367.

HAB. Whole of North America, and south through West Indies and Middle America to northern Brazil, Trinidad, and Panama. Represented in the Palearctic Region by the true *P. haliaëtus* (Linn.), and in the Australian Region by *P. haliaëtus leucocephalus* (Gould).

SP. CHAR. Young male (No. 17,227, San José, Lower California, December 15, 1859, J. Xantus). Upper surface dark vandyke-brown, with a faint purplish cast; quills black. Every feather with a conspicuous sharply defined terminal crescent of pure white. Tail

brownish drab, narrowly tipped with white, and crossed with seven (one concealed) regular bands of dusky; inner webs almost wholly white, the black bands sharply defined and continuous; shafts entirely white. Ground color of the head, neck, and entire lower parts pure white; a broad stripe from the eye back across upper edge of the ear-coverts to the occiput brownish black; white head also sparsely streaked with blackish, these streaks suffusing and predominating medially; nape faintly tinged with ochraceous, and sparsely streaked. Breast with large cordate spots of brown, fainter than that of the back, a median spot on each feather, the shaft black; rest of lower parts immaculate. Lining of the wing white, strongly tinged with ochraceous; the brown of the outer surface encroaching broadly over the edge. Under primary coverts with broad transverse spots or bars; under surface of primaries grayish white anterior to the emargination, irregularly mottled with grayish; axillars immaculate. Wing formula, 2=3, 4-1, 5. Wing, 20.00; tail, 8.80; culmen, 1.35; tarsus, 1.10-2.15; middle toe, 1.90; outer, 1.75; inner, 1.40; posterior, 1.15; posterior outer and inner claws of equal length, each measuring 1.20 (chord); middle, 1.15. "Iris yellow; feet greenish yellow."

Adult male. Similar, but upper parts uniform dusky brown, and the breast very slightly (often not at all) spotted.

Adult female (No. 290, Carlisle, Pa., April 17, 1841, S. F. Baird). Similar to adult male but breast rather more spotted. Wing formula, 3, 2-4-1, 5. Wing, 20.50; tail, 9.15; culmen, 1.35; tarsus, 2.15; middle toe, 1.70.

The specimens described are those having the breast most distinctly spotted. Many others have the breast immaculate, this being the rule in the American bird, especially the adult male. Specimens vary, in length of wing from 17.50 to 20.50. Contrary to the usual rule in this family, the male appears to exceed the female in size.

Measurements.

Sex.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.	Specimens.
Male	19.00-20.50	10.00-10.50	1.35	2.25-2.40	1.80-1.85	5
Female	18.75-19.00	8.80-9.50	1.25-1.35	2.00-2.25	1.70-1.80	4

Second and third quills longest; first shorter or longer than fifth.

The Fish Hawk is a common species on all the larger waters of the State. It is a summer resident, though in the southern portion individuals have occasionally been observed during mild winters. From *History of North American Birds*, Vol. III., pp. 188, 189, we quote the following respecting the habits of this species:

"I can find no instance on record where our Fish Hawk has been known to molest any other bird or land animal, to feed on them, though their swiftness of flight, and their strength of wing and claws, would seem to render such attacks quite easy. On their arrival the Fish Hawks are said to combine, and to wage a determined war upon the White-headed Eagles, often succeeding by their numbers and courage in driving them temporarily from their haunts.

But they never attack them singly. The Fish Hawk nests almost invariably on the tops of trees, and this habit has been noticed in all parts of the country. It is not without exceptions, but these are quite rare. The trees on which their nests are built are not unfrequently killed by their excrement or the saline character of their food and the materials of their nest. The bird is bold and confiding, often constructing its nest near a frequented path, or even upon a highway.

"The nests are usually composed externally of large sticks, often piled to the height of five feet, with a diameter of three. In a nest described by Wilson, he found, intermixed with a mass of sticks, corn-stalks, sea-weed, wet turf, mullein-stalks, etc., the whole lined with dry sea-grass (*Zostera marina*) and large enough to fill a cart and be no inconsiderable load for a horse.

"They are very devoted in their attentions to their mates, and supply them with food while on the nest.

"In some localities the Fish Hawk nests in large communities as many as three hundred pairs having been observed nesting on one small island. When a new nest is to be constructed, the whole community has been known to take part in its completion. They are remarkably tolerant towards smaller birds, and permit the Purple Grackle (*Quiscalus purpureus*) to construct its nests in the interstices of their own. Wilson observed no less than four of these nests thus clustered in a single Fish Hawk's nest, with a fifth on an adjoining branch."

SUBFAMILY ACCIPITRINÆ.—THE KITES, HAWKS, AND EAGLES.

CHAR. Outer toe not reversible, and claws graduated in size, with their under surface grooved, or at least not contracted; bill without distinct teeth in connection with a small circular nostril enclosing a distinct long tubercle. Other characters extremely variable.

The variations of form among the numerous members of this extensive subfamily are so great that it becomes a difficult matter to diagnose it briefly. A fuller diagnosis may be found on page 426, which, taken in connection with the one given above, should enable the student to identify without difficulty a bird belonging to this subfamily.

It is not claimed that the following arrangement is perfectly natural, since it is intended expressly as a convenient artificial analysis to facilitate identification of the North American genera.

- A.** Wing less than 18 inches; inner webs of not more than four or five outer quills distinctly emarginated.

*a*¹. Lower half, or more, of tarsi naked.

*b*¹. Front of tarsi without transverse scutellæ.

1. *Elanoides*. Tail excessively forked, the lateral rectrices more than twice as long as the middle pair. Claws grooved beneath. Tarsi covered with large, irregular scales.
2. *Elanus*. Tail double-rounded. Claws rounded on their under side. Tarsi covered with minute roundish scales.

*b*². Front of tarsi with transverse scutellæ.

*c*¹. Tail emarginate, and bill greatly hooked or else distinctly notched and toothed.

3. *Ictinia*. Bill Falcon-like, with distinct, though not prominent, notch and teeth. Feet small and robust, the claws not unusually elongated.
4. *Rostrhamus*. Bill very slender and greatly hooked, entirely devoid of notch or tooth. Feet slender, the claws unusually lengthened. (Extralimital; tropical.)

*c*². Tail truncate or rounded, or if emarginate the bill neither greatly hooked nor distinctly notched.

*d*¹. Form slender, the head proportionally small, the legs slender, claws very acute, and tail lengthened. Bill comparatively weak, compressed, high through the base, the culmen much ascending basally, and the cere decidedly arched.

5. *Circus*. Face surrounded by a "ruff" of stiffened, differently formed, feathers, as in the owls. Tarsus more than twice as long as the middle toe. Wing very long, outer four primaries with inner webs sinuated.

6. *Accipiter*. Face without ruff. Tarsus less than twice the length of the middle toe. Wing short, very concave beneath, the outer quill much bowed, the five outer with inner webs emarginated.

*d*². Form short and heavy, the head larger, tail shorter, and legs more robust, with claws less acute. Bill stronger, less compressed, lower through the base, the upper outline less ascending basally, and cere less arched.

7. *Parabuteo*. Form heavy, the wings and tail moderately long, and feet very robust; bill rather elongated, the commissural lobe prominent, and the base of the culmen somewhat depressed. Fourth quill longest; outer five with inner webs cut. Lores naked, and almost destitute of bristles. (Extralimital.)

8. *Onychotes*. Outstretched feet reaching beyond end of tail; tibial plumes short, close, not reaching below the joint. Wing short, rounded, very concave beneath, the fourth quill longest; outer five with inner webs sinuated. Tail short, but little more than half the wing, slightly rounded. Claws very long and extremely acute. (Extralimital.)

9. *Asturina*. Bill and feet as in *Parabuteo*; lores densely bristled; wing short, rounded, concave beneath, the third to fourth quills longest; outer four with their inner webs cut.

10. *Buteo*. Form of *Parabuteo*, but primaries longer and more pointed, the fourth usually longest, and the outer three or four with inner webs cut. Tail moderate, or rather short, nearly even, or slightly rounded.

*a*². Tarsus densely feathered to the base of the toes.

11. *Archibuteo*. Feathering of the tarsus interrupted behind by a bare strip along the full length. Nostril broadly oval, obliquely horizontal; bill weak, the upper outline of the cere much ascending basally. Feathers of the nape normal, blended. Third to fourth quills longest; outer four or five with inner webs cut.

- B.** Wing more than 20 inches; inner webs of outer six primaries distinctly emarginated.
- a*¹. Tarsus densely feathered, all round, to the base of the toes.
12. *Aquila*. Nostril narrowly oval, obliquely vertical. A very distinct web between middle and outer toes. Feathers of the nape distinctly lanceolate.
- a*². Tarsus with lower part naked.
13. *Haliaeetus*. Tail rounded, of 12 rectrices. Upper outline of cere nearly straight; nostrils with lower end rounded, opening rather abruptly inward.
14. *Thalassoaetus*. Tail cuneate, of 14 rectrices. Upper outline of cere much arched; nostrils with lower end pointed and beveled gradually to the level of the cere. (Extralimital; Kamtschatkan—and Aleutian?)
15. *Thrasaetus*. Secondaries greatly developed, both in length and breadth, reaching to the end of primaries; fifth to seventh quills longest, the outer seven with inner webs shallowly sinuated. Claws enormously large and powerful, but rather obtuse, the inner and posterior ones equal to their digits in length. (Extralimital; tropical.)

GENUS *ELANOIDES* VIEILLOT.

Elanoides VIEILLOT, Nouv. Dict. d'Hist. Nat. xxiv, 1818, 101. Type, *Falco forficatus* LINN.
Naclerus AUCT. nec VIGORS, 1825.

CHAR. *General external characters.* Bill rather small and narrow, intermediate between that of *Pandion* and *Elanus*; compressed anteriorly, and very broad at the base; the terminal hook well produced, the tomia very regular; cere ascending; nostril broadly oval, oblique; gonys nearly straight; tomium of the lower mandible very convex. Lores densely feathered, the feathers bristle-like. Feet robust; tarsus a little longer than the middle toe, covered with large, irregular, hexagonal scales; toes with transverse scutellæ nearly to the base; claws short, strong, abruptly flattened beneath, the edges very sharp, the middle claw bent laterally, the inner side very convex, the projecting edge sharp and entire. No web between the toes. Primaries and rectrices excessively elongated and narrow, the former more than twice the length of the secondaries. Outer tail-feathers about equal to the primaries, and more than twice as long as the middle pair.

*Osteological characters.** Cranium very similar in contour and proportions to that of *Pandion*, but presenting important modifications in minor details. Superciliary process of the lachrymal distinct from the frontal, which is completely anchylosed with the nasal; inner convoluted edge of the palatines scarcely produced downward; nasal septum completely ossified; pterygoid bone narrow, and of a uniform width throughout its length. Sternum similar to that of *Pandion*, having, like it, a pair of indentations on the posterior margin, and destitute of foramina; the clavicle, coracoids, and scapula are also very similar.

Anatomical characters. "Palate flat with two longitudinal ridges; upper mandible with a tuberculate median ridge, lower deeply concave; posterior aperture of the nares oblongolinar, with the edges papillate. Tongue somewhat decurved, emarginate, and finely papillate at the base, flat above, its tip narrow and acutely emarginate. Œsophagus

* Of this genus we have seen only the skull and sternum.

gus of nearly uniform width, being destitute of crop, and thus resembling that of the owls; its walls extremely thin; stomach very large, round, slightly compressed, its muscular coat very thin, and composed of a single series of fasciuli. Intestine short and rather wide; pylorus with three knobs, duodenum forming a loop in the usual manner; no cæca; rectum short, with a large globular dilatation."—MACGILLIVRAY.

Pterylographical characters. "Inner branch on the jugular part distinct but short; outer branch entirely free. Dorsal portion of the spinal tract usually long."* (NITZSCH.) Contour-feathers with aftershfts. Lumbar tract present. Remiges, 23.

Apparently more nearly related to *Pernis*, *Leptodon*, *Regerhinus*, and allied forms than to any other genera, the genus *Elanoides* yet stands isolated from these by the absence of many characters common to them, and by the possession of features peculiarly its own. In general external form, it approaches quite nearly the genus *Milvus*, but when compared closely, the two are found to possess no real affinities of structure. The same is true of its relationship to *Nauclerus riocouri*, usually placed in the same genus, but which is more intimately related to *Ictinia*, *Elanus*, and their affines.

The genus contains but a single species, the *E. forficatus*, which is peculiar to America, belonging to the tropical and subtropical portions on both sides of the equator. The species is noted for the elegance of its form and the beauty of its plumage, as well as for the unsurpassed easy gracefulness of its flight.

Elanoides forficatus (Linn.)

SWALLOW-TAILED KITE.

Popular synonyms. Swallow-tailed Hawk; Fish-tail Hawk; Snake Hawk; Fork-tail Snake Hawk; Mackerel-tail Hawk; White-headed Swallow Kite.

Falco forficatus LINN. S. N. ed. 10, i, 1758, 89.

Nauclerus forficatus RIDGW. 1870.—B. B. & R. Hist. N. Am. B. iii, 1874, 192.—COUES, B. N. W. 1874, 332.

Elanoides forficatus COUES, Proc. Acad. Nat. Sci. Phil. 1875, 345; 2d Check List, 1882, No. 493.—RIDGW. Nom. N. Am. B. 1881, No. 426.

Falco furcatus LINN. S. N. ed. 12, i, 1766, 129.—WILS. Am. Orn. vi, 1812, 70, pl. 51, figs. 1, 3.—AUD. B. Am. fol. ed. 1831, pl. 72; Orn. Biog. i, 1830, 368; v, 1839, 371.

Nauclerus furcatus VIG. 1835.—AUD. B. Am. i, 1840, 78, pl. 18; Synop. 1839, 14.—CASS. in Baird's B. N. Am. 1858, 36.—BAIRD, Cat. N. Am. B. 1859, No. 34.—COUES, Key, 1872, 211; Check List, 1874, No. 337.

HAB. Whole of tropical and subtropical America, except West Indies; north, casually to Massachusetts and Michigan, more regularly to Maryland, Illinois, Iowa, Minnesota, etc. Much more numerous in the Mississippi Valley than east of the Alleghanies.

SP. CHAR. Wing, 15.40-17.70; tail, 12.50-14.50; culmen, .70-.80; tarsus, 1.00-1.30; middle toe, 1.00-1.20. Head, neck, entire lower parts (including lining of the wing and basal half of the secondaries underneath), and band across the rump pure white. Back,

* NITZSCH gives the above characters of a group in which he includes *Milvus regalis*, *M. ater*, and *Elanoides forficatus*.

wing, and tail plain polished blackish, with varying reflections; tertials white, with blackish tips. *Adult.* The white of the head and neck immaculate; back, scapulars and lesser wing-coverts with a soft reflection of dark purplish bronze, the other black portions with a glaucous or chalky cast, with a green reflection in certain lights. *Young.* Feathers of the head and neck with dusky shaft-streaks; the black above less glossy, more brownish, a bottle-green reflection replacing the soft purplish bronze on the back and shoulders; remiges, rectrices, and primary coverts with a narrow terminal border of white.

There is little variation in the coloration of this beautiful species, the only one presenting differences particularly noticeable being No. 56,099 (said to be from England), in which the black in its entire extent is nearly uniform, and glossed with a uniform violaceous slate. This appearance, however, is probably caused by the greater age of the feathers.

The fresh colors of an adult male, shot at Mt. Carmel, Illinois, August 1, 1870, were as follows:

"Bill deep black, the basal half of the lower mandible, the basal portion of the upper beneath the cere, the cere, rictus, and naked eyelids, plumbeous blue; feet similar but paler; claws grayish brown; *iris very dark brown*; interior of the mouth bright cobalt-blue." (No. 84,480, male, Mt. Carmel, Ill., Aug. 1, 1870. Length, 22.75; extent, 50.80.)

In former years common throughout the State, and in some portions even at times abundant, this, the most graceful of all the birds of prey, is becoming scarcer every year. In the northeastern portion of the State it was once common, according to Mr. Kennicott, but at the time he wrote* (1854) it had become rare; while in 1876, Mr. Nelson says† that he can testify to its scarcity, "only two or three instances of its occurrence within the last twenty years having been ascertained." It feeds with the greatest ease while flying, the food being held in the feet, which are reached gently forward at the same moment the bird's head is lowered to tear a mouthful from the object that is being eaten.

GENUS *ELANUS* SAVIGNY.

Elanus SAVIGN. Desc. de l'Egypte, 1809, 284. Type *Falco melanopterus* DAUD., = *F. cœruleus* DESF.

GEN. CHAR. Bill rather small, very wide basally, much compressed anteriorly, the tip well produced; lower mandible declinate, obliquely truncated, its tomium greatly arched; superior tomium somewhat "bulged" laterally, and slightly sinuated; gonys straight, or very slightly convex. Nostrils roundish, or oval and horizontal, in middle

* Illinois Agricultural Report, 1853-54.

† Bull. Essex Inst., viii, 1876, p. 113.

of the cere. Feet small, but very robust; tarsus about equal to middle toe; outer toe shorter than the inner, and about equal to the hallux; web between outer and middle toe just apparent; claws small, but sharp, and well curved, the under surface rounded and just perceptibly flattened; middle claw with the sharp protecting lateral ridge very prominent. Tarsus and toes (except terminal joint of the latter) covered uniformly with minute roundish scales. Wing long; second to third quill longest; first intermediate between second and fourth. First quill with inner web emarginated, near the end; second, sinuated. Tail double-rounded, more than one half the wing.

Elanus leucurus (Vieill.)

WHITE-TAILED KITE.

Popular synonym. Black-shouldered Kite.

Milvus leucurus VIEILL. NOUV. DIET. XX, 1818, 556.

Elanus leucurus BP. 1838.—CASS. in BAIRD'S B. N. AM. 1858, 36.—BAIRD, CAT. N. AM. B. 1859, No. 35.—COUES, KEY, 1882, 211; CHECK LIST, 1874, No. 67.—B. B. & R. HIST. N. AM. B. III, 1874, 197, 198.

Falco dispar TEMM. PL. COL. I, 1825, pl. 319 (=juv.).—AUD. B. AM. 1838, pls. 351, 352; ORN. BIOG. IV, 1838, 367.

Elanus dispar CUV. REG. AN. ED. 1829, I, 334.—NUTT. MAN. 1833, 93.—AUD. SYNOP. 1839, 13; B. AM. I, 1840, 70, pl. 16.

Elanus glaucus "(BARTR.)" COUES, PROC. PHIL. ACAD. (*ex Falco glaucus* BARTR. TRAVELS, 1791, 290; 2d CHECK LIST, 1882, No. 492.—RIDGW. NOM. N. AM. B. 1881, No. 427.

HAB. The whole of continental tropical and subtropical America; south to Paraguay, Argentine Republic, and Chili, north to southern United States (Texas to Florida and South Carolina), Indian Territory, New Mexico, and California; occasional (breeding?) in extreme southern portion of Illinois.

SP. CHAR. *Adult.* Upper surface, including occiput, nape, interscapulars, scapulars, rump, upper tail-coverts, and wings (except lesser and middle coverts), soft, delicate, rather light bluish cinereous, becoming gradually white on the anterior portion of the head, above. Rest of the head, with the tail, lining of the wing, and entire lower parts, pure white, sometimes with a very faint tinge of pale pearl-blue, laterally beneath; two middle tail-feathers ashy, but much lighter than the rump; shafts of tail-feathers black, except toward ends. Bristly loreal feathers (forming ante-orbital spot, extending narrowly above the eye), a very large patch on the shoulder, covering lesser and middle wing-coverts, and large quadrate spot on under side of wing (on first row of primary coverts), deep black. Under side of primaries deep cinereous (darker than outer surface); under surface of secondaries nearly white. Second quill longest; third scarcely shorter (sometimes equal, or even longest); first longer than, or equal to the fourth. Tail slightly emarginated, the longest feather (next to outer) being about .50 longer than the middle, and .60 (or more) longer than the lateral, which is shortest.

Male. Wing, 11.80-12.50; tail, 7.30-7.60; culmen, .66-.80; tarsus, 1.30-1.50; middle toe, 1.00-1.15 (eight specimens).

Female. Wing, 11.60-12.75; tail, 7.20-7.80; culmen, .70-.72; tarsus, 1.25-1.40; middle toe, 1.10-1.20 (eight specimens).

Specimens not perfectly adult have the primary coverts, secondaries, and inner primaries, slightly tipped with white.

Still younger individuals have these white tips broader, the tail more ashy, and the upper parts with numerous feathers of dull brown, tipped narrowly with white; the breast with sparse longitudinal touches of brownish.

Young female (No. 48, 826, Santiago, Chili, May, 1866: Dr. Philippi). Occiput and nape thickly marked with broad streaks of dusky, tinged with rusty; scapulars umber-brown, tipped with rusty; all the feathers of the wings narrowly tipped with white; tail-feathers with a subterminal irregular bar of dark ashy; breast tinged with rufous, and with badly defined cuneate spots of deeper rusty. Wing, 12.25; tail, 7.50.

An adult female, obtained at San Francisco, California, February 11, 1868, had the "bill black, eyes orange-red, tarsi and toes yellow." Total length $16\frac{1}{2}$ inches, extent 42 inches.

As to the occurrence of this species in Illinois, we have little information, the only record being that of the writer's previous lists, based on a pair observed near the river at Mt. Carmel during the summer of 1863 or 1864. It is very likely of not uncommon occurrence during summer in suitable places in the extreme southern counties of the State.

GENUS *ICTINIA* VIEILLOT.

Ictinia VIEILL. Analyse, 1816, 24. Type, *Falco mississippiensis* WILS.

Nertus BOIE, Isis, 1828, 314. Type, *Falco plumbeus* GMEL.

GEN. CHAR. Form falcon-like; the neck short, shoulders broad, wings long and pointed, the rectrices strong and stiff, claws strongly curved and acute, and general organization robust. Bill short and deep, "bulged" laterally, the terminal hook abruptly compressed; tomia irregularly toothed and notched; gonys very convex, ascending terminally. Cere narrow; nostril very small, roundish. Feet small but robust, the tarsus about equal to the middle toe; outer toe decidedly longer than the inner, which is equal to the hallux; web between it and the middle toe well developed; tarsus with a distinct frontal series of broad transverse scutellæ; claws short, but strongly curved, very sharp, grooved beneath. Third quill longest; first of variable proportion with the rest; outer two with inner webs sinuated. Tail a little more than half the wing, emarginated, or nearly even, the feathers broad, with nearly truncated, though rounded, ends.

Structurally, *Ictinia* seems to be most nearly related to *Harpagus*, a tropical American genus, which, however, differs much in general appearance, being of decidedly hawk-like aspect. The structural differences between the two genera may be tabulated as follows:

***Ictinia*.** Tomial tooth simple. Tarsus nearly equal to, or but little longer than, the middle toe; posterior toe equal to the outer. Wing very long, reaching to or beyond end of the tail, the primaries greatly developed, almost twice the length of the secondaries. Tail about one half the wing, even, or slightly emarginated.

***Harpagus*.** Tomial tooth double. Tarsus about one and a half times the middle toe; posterior toe decidedly shorter than the outer. Wing short, reaching only to about the middle of the tail, the primaries only moderately developed, less than one and a half times the secondaries. Tail nearly equal to wing, slightly rounded.

Ictinia mississippiensis (Wils.)**MISSISSIPPI KITE.**

Popular synonyms. Blue Kite; Blue Snake Hawk.

Falco mississippiensis WILS. Am. Orn. iii, 1811, 80, pl. 25, fig. 1.

Ictinia mississippiensis BP. 1850.—CASS. in Baird's B. N. Am. 1853, 37.—BAIRD, B. N. Am. 1859, No. 36.—COUES, Key, 1872, 211; Check List, 1874, No. 335.

Falco plumbeus "GMEL." AUD. B. Am. 1834, pl. 117; Orn. Biog. ii, 1834, 108; v, 1839, 374 (*nec* GMEL.).

Ictinia plumbea NUTT. Man. i, 1833, 92 (*nec* VIEILL.)—AUD. Synop. 1839, 14; B. Am. i, 1840, 73, pl. 17.

Ictinia subcærulea "(BART.)" COUES, Proc. Phil. Acad. (*ex Falco subcæruleus* BART. Trav. 1791, 290); 2d Check List, 1882, No. 491.—RIDGW. Nom. N. Am. B. 1881, No. 428.

HAB. More southern eastern United States; north, regularly, to South Carolina, and southern Illinois, more rarely to Iowa and Wisconsin, and casually to Pennsylvania; south through eastern Mexico and Guatemala.

SP. CHAR. *Adult male* (No. 84,483, Fox Prairie, Richland Co., Ill., August 19, 1871). Head, neck, secondaries, and entire lower parts plumbeous ash, becoming, by a gradual transition, lighter on the head and secondaries, where the shade is pale cinereous; the head anteriorly, and the tips of the secondaries being silvery white. Lores and eyelids black. Rest of the plumage dark plumbeous, approaching plumbeous black on the lesser wing-coverts, primaries and upper tail-coverts, the tail being nearly pure black. Primaries with an indistinct narrow concealed stripe of chestnut-rufous on the outer webs, and larger spots of the same on the inner webs; feathers of the head, neck, and lower parts abruptly pure white beneath the surface, this showing in partly exposed spots on the pectoral region and crissum. Scapulars also with large concealed white spots. Shafts of primaries and tail-feathers black on both sides. Wing formula, 3, 2-4-5-6, 1. First primary angularly, the second concavely, emarginated. Tail emarginated, lateral feather longest; depth of fork, .40. Wing, 11.75; tail, 6.80; culmen, .63; tarsus, 1.20; middle toe, 1.15.

Adult female (Fox Prairie, Richland Co., Ill., August 19, 1871). Similar to the male, but head and secondaries decidedly darker, hardly approaching light ash; scarcely any trace of rufous on the primaries, none at all on outer webs; shafts of tail-feathers white on under side. Wing, 11.80; tail, 7.25. Bill, cere, eyelids, and interior of mouth, deep black; iris deep lake-red; rictus orange-red; tarsi and toes pinkish orange-red, lower part of tarsus and large scutellæ of toes dusky. (Notes from fresh specimens, the ones above described.)

Immature male (transition plumage; No. 84,484, Fox Prairie, Richland Co., Ill., August 21, 1871). Similar to the adult female, but the white spots on basal portion of pectoral and crissal feathers distinctly exposed; secondaries not lighter than rest of the wing. Tail-feathers with angular white spots extending quite across the inner webs, producing three distinct transverse bands when viewed from below. Inner web of outer primary mostly white anterior to the emargination. Wing, 10.50; tail, 6.25. Color of bill, etc., as in the adult, but interior of mouth whitish, and the iris less pure carmine.

Immature female (Coll. Philadelphia Academy, Red Fork of the Arkansas, 1850; Dr. Woodhouse). Similar to the last. Wing, 11.10; tail, 6.31.

Young female (first plumage; Coll. Philadelphia Academy, North Fork Canadian River, September 19, 1851; Dr. Woodhouse). Head, neck, and lower parts white, with a yellowish tinge; the most perceptible on the tibiae. Each feather with a median longitudinal ovate spot of blackish brown, more reddish on the lower parts. The chin, throat, and a broad superciliary stripe, are immaculate white. Lower tail-coverts each with a median acuminate spot of rusty, the shaft black. Upper parts brownish black; wing-coverts, scapulars, and interscapulars, feathers of the rump, and the upper tail-cover, narrowly

bordered with ochraceous white, and with concealed quadrate spots of the same; primary coverts, secondaries, and primaries sharply bordered terminally with pure white. Tail black (faintly whitish at tip), with three (exposed) indistinct bands of a more slaty tint; this changing to white on the inner webs, in the form of angular spots forming the bands. Lining of the wing pale ochraceous, transversely spotted with rusty rufous; under primary coverts with transverse spots of white. Wing, 11.90; tail, 6.40.

Six adult males measured as follows: Wing, 10.16–11.85; tail, 6.00–8.80; culmen, .60–.65; tarsus, 1.35–1.55; middle toe, 1.00–1.10.

Five adult females: Wing, 11.30–12.80; tail, 6.50–8.00; culmen, .60–.65; tarsus, 1.30–1.40; middle toe, 1.00–1.05.

This neat and spirited falcon-like Kite is not an uncommon bird in some localities of the southern portion of the State. It is frequently an associate of the Swallow-tail, which it rivals in the gracefulness of its flight and even excels in swiftness. In August, 1871, it was very plentiful on Fox Prairie. It was usually observed sailing about, far above the Swallow-tails, but now and then half closing the wings and pitching nearly straight downward with the velocity of an arrow, as if to strike the earth; but by a sudden extension of the wings instantly checking its rapid descent and remounting, by a steep angle, almost to the height from which it had started, the whole of the downward and upward courses unaccompanied by a single motion of the wings. This performance was sufficiently startling when done by a single bird; but when several plunged headlong simultaneously, their tracks crossing one another at various angles, the effect was impressive to an extreme degree.

Regarding his experience, in the vicinity of Cairo, Mr. Nelson writes as follows (*Bull. Essex Inst.*, IX., 1877, p. 58):

"Their power of sight is truly wonderful. I saw them repeatedly dart with unerring aim upon some luckless grasshopper, from an elevation of at least one hundred yards.

"No less remarkable in their power of flight. I repeatedly saw them dart down from a great height with such a velocity that it would seem an impossibility for them to escape being dashed to pieces on the ground, but instead, when within a few feet of the earth, they would suddenly spread their wings and the reaction would lift them with almost equal rapidity to about one half their former elevation. They were so shy that it was impossible to get within gunshot of them."

Audubon regards this species as remarkable for its devotion to its young, and narrates that in one instance he saw the female bird lift up and attempt to carry out of his reach one of her fledglings. She carried it in her claws a distance of thirty-five yards or more.

He also describes their flight as graceful, vigorous, and protracted. It feeds on the wing with great ease and dexterity. It rarely, if ever, alights on the earth; and, when wounded, its movements on the ground are very awkward. It is never known to attack birds or quadrupeds of any kind, though it will pursue and annoy foxes and crows, and drive them to seek shelter from its attacks. The Mississippi Kite is said to be by no means a shy bird, and may be easily approached when alight, yet it usually perches so high that it is not always easy to shoot it. (BREWER.)

GENUS *CIRCUS* LACÉPÈDE.

Circus LACÉPÈDE, Mem. de l'Inst. iii, 1806, 506. Type *Falco cyaneus* LINN.

GEN. CHAR. Form very slender, the wings and tail very long, the head small, bill weak, and feet slender. Face surrounded by a ruff of stiff, compact feathers, as in the Owls. Claws strongly curved, very acute. Wings very long, the third or fourth quills longest; first shorter than the sixth; outer three to five with inner webs sinuated. Tail very long, about two thirds the wing; rounded.

The relationships of this well-marked genus are to *Accipiter* on the one hand, and *Elanus* on the other; nearest the former, though it is not very intimately allied to either.

The species are quite numerous, numbering about twenty, of which only three are American. North America possesses but one (*C. hudsonius*, Linn.), and this with the *C. cinereus*, Vieill., of South America, is closely related structurally to *C. cyaneus* of Europe, but is sufficiently distinct.

The birds of this genus frequent open, generally marshy, localities, where they course over the meadows, moors, or marshes, with a steady, gliding flight, seldom flapping, in pursuit of their food, which consists mainly of mice, small birds, and reptiles. Their assault upon their prey is sudden and determined, like the "Swift Hawks," or the species of *Accipiter*.

Circus hudsonius (Linn.)

MARSH HAWK.

Popular synonyms. American Harrier; Ring-tailed Harrier.

Falco hudsonius LINN. S. N. ed. 12, i, 1766, 128.

Circus hudsonius VIEILL. 1807.—CASS. in Baird's B. N. Am. 1853, 33.—BAIRD, Cat. N. Am. 1 B. 1859, No. 33.—RIDGW. Nom. N. Am. B. 1831, No. 430.

Circus cyaneus hudsonius SCHLEG. Mus. P.-B. *Circi*, 1862, 2.—COUES, 2d Check List, 1882, No. 489.

Circus cyaneus var. *hudsonius* COUES, Key, 1872, 210; Check List, 1874, No. 333; B. N.

W. 1874, 327.—B. B. & R. Hist. N. Am. B. iii, 1874, 214.

Falco uliginosus GMEI. S. N. i, 1788, 278.—WILS. Am. Orn. vi, 1812, 67, pl. 51, fig. 2.

Circus cyaneus? var? *americanus* SW. & RICH. F. B.-A. ii, 1831, 55, pl. 29.

Falco cyaneus "LINN." AUD. B. Am. vi, 1843, pl. 356 (*nec* LINN.)

Circus cyaneus "BOIE," NUTT. Man. 1833, 109.—AUD. Synop. 1839, 19; B. Am. i, 1840, 105, pl. 26.

HAB. The whole of North America; south, in winter, to Panama, north to Hudson's Bay Territory and Alaska; Cuba. Breeding throughout western United States (south to Texas), and in Eastern States chiefly north of 40°.

SP. CHAR. *Adult male* (No. 10,764, Washington, D. C., December). Head, neck, breast, and upper parts light cinereous, palest anteriorly where it is uninterrupted or continuous; occiput somewhat darker, with a transverse series of longitudinal dashes of white, somewhat tinged with reddish. Back, scapulars, and terminal third of secondaries, with a dusky wash, the latter fading at tips; five outer primaries nearly black, somewhat hoary on outer webs beyond their emargination; lesser wing-coverts faintly mottled with paler, or with indistinct dusky spots. Upper tail-coverts immaculate pure white. Tail bluish cinereous, mottled with white toward base; crossed near the end with a distinct band of black, and with about five narrower, very obscurely indicated ones anterior to this; tip beyond the subterminal zone fading terminally into whitish. Whole under side of wing (except terminal third or more of primaries) pure white; immaculate, excepting a few scattered transverse dusky spots on larger coverts. Rest of under parts pure white everywhere, with rather sparse transverse cordate spots of rufous. Wing, 14.00; tail, 9.20; tarsus, 2.80; middle toe, 1.30. Third and fourth quills equal, and longest; second intermediate between fifth and sixth; first 5.81 inches shorter than longest.

Adult female (No. 16,758, Hudson's Bay Territory; Captain Blakiston). Umber-brown above, feathers of the head and neck edged laterally with pale rufous; lores, and superciliary and suborbital stripes dull yellowish white, leaving a dusky stripe between them, running back from the posterior angle of the eye. Lesser wing-coverts spattered with pale rufous, this irregularly bordering and indenting the feathers; feathers of the rump bordered with dull ferruginous. Tail deep umber, faintly fading at the tip, and crossed by six or seven very regular, sharply defined, but obscure, bands of blackish; the alternating light bars becoming paler and more rufous toward the edge of the tail, the lateral feathers being almost wholly pale cream-color or ochraceous, darker terminally; this tint is more or less prevalent on the inner webs of nearly all the feathers. Ear-coverts dull dark rufous, indistinctly streaked with dark brown; the feathers of the facial disk fine pale cream-color, each with a middle stripe of dark brown; throat and chin immaculate dirty white, like the superciliary and suborbital stripes. Beneath dull white, with numerous broad longitudinal stripes of umber-brown; these broadest on the breast, growing gradually smaller posteriorly. Under surface of primaries dull white, crossed at wide intervals with dark brown irregular bars, of which there are five (besides the terminal dark space) on the longest quill.

Young female (No. 15,585, Bridger's Pass, Rocky Mountains, August; W. S. Wood). Upper parts very dark rich clove-brown, approaching sepia-black; feathers of the head bordered with deep ferruginous, and lesser wing-coverts much spotted with the same, the edges of the feathers being broadly of this color; secondaries and inner primaries fading terminally into whitish; upper tail-coverts tinged with delicate cream-color (immaculate). Tail with four very broad bands of black, the intervening spaces being dark umber on the two middle feathers, on the other fine cinnamon-ochre; the tip also (broadly) of this color. Ear-coverts uniform rich dark snuff-brown, feathers of satiny texture; feathers of facial disk the same centrally, edged with fine deep rufous. Entire lower parts deep reddish ochraceous or fulvous rufous, growing gradually paler posteriorly; immaculate, with the exception of a few faint longitudinal stripes on the breast and sides. Under side of wing as in the last, but much tinged with rufous.

So far as I am able to judge from the large series of specimens examined, there does not appear to be the slightest difference between eastern and western specimens, in any stage of plumage.

The American Harrier is quite distinct from the European *C. cyaneus*, although the two species are much alike in some plumages. The adult male of *C. cyaneus* is wholly destitute of the dusky sub-terminal bar to the tail-feathers and secondaries, and lacks the reddish markings on the lower parts, which, posterior to the jugulum, are immaculate pure white. The dimensions are also less than those of *C. hudsonius*.

Measurements of C. hudsonius.

Sex.	Wing.	Tail.	Culmen.	Tarsus.	Middle Toe.	Specimens.
Male	12.90-13.85	9.00-9.90	.60-.70	2.85-2.90	1.20-1.30	36
Female	13.00-16.00	8.80-10.50	.70-.75	2.85-3.35	1.22-1.55	32

A young male, shot August 17, 1867, in the Truckee Valley, Nevada, measured $18\frac{3}{4}$ inches in length by 42 in spread of wings. The bill was deep black, more bluish basally; cere and rictus greenish gamboge-yellow, the former purer yellow on top; iris yellowish gray; tarsi and toes rich orange-yellow, the claws jet-black.

Two young females obtained in August and December, 1867, on the lower Truckee and on the shore of Pyramid Lake, Nevada, measured $19\frac{1}{2}$ - $20\frac{1}{4}$ inches in length, and $43\frac{1}{2}$ -44 in extent of wings. The fresh colors were as above described, except that the specimen obtained in December had the iris dull fulvous.

The Marsh Hawk is a bird of very extensive distribution, but at the same time is by no means a well-known species except in those portions of the country where it is most abundant. In Illinois it may be observed at all seasons of the year, but, at least in the southern portion of the State, it is decidedly most numerous in winter.

"According to Audubon, the Marsh Hawk rarely pursues birds on the wing, nor does it often carry its prey to any distance before it alights and devours it. While engaged in feeding, it may be readily approached, surprised, and shot. When wounded, it endeavors to make off by long leaps; and when overtaken, it throws itself on the

back and fights furiously. In the winter its notes while on the wing are sharp, and are said to resemble the syllable *pee-pec-pee*.

"Mr. Audubon has found this Hawk nesting not only in low lands near the sea shore, but also in the barrens of Kentucky and on the table lands of the Alleghanies, and once in the high covered pine-barrens of Florida.

"After having paired, the Marsh Hawks invariably keep together, and labor conjointly in the construction of the nest, in sitting upon the eggs, and in feeding the young. Their nests are variously constructed as to materials, usually chiefly of hay somewhat clumsily wrought together into the form of a nest, but never very nicely interwoven; occasionally, in more northern localities, they are lined with feathers, in some cases with pine-needles and small twigs." (BREWER.)

GENUS ACCIPITER BRISSON.

GEN. CHAR. Four to five outer primaries with inner webs emarginated; third to fifth quills longest; inner toe reaching scarcely beyond the first joint of the middle toe or falling short of it.

Form slender, the tail long, the wing short and rounded, the feet slender, claws very acute. Head comparatively small; the bill rather weak. Bill nearly as deep through the base as the length of the culmen (chord), its upper outline decidedly ascending basally; maxillary tomium with a prominent "festoon." Nostril broadly ovate, obliquely horizontal. Superciliary shield very prominent. Tarsus longer than the much lengthened middle toe, the frontal and posterior series of transverse scutellæ very distinct and continuous (except in males of some of the smaller species, in which these scales are "fused" into a continuous plate). Outer toe longer than the inner. Wing comparatively short, much rounded, and very concave beneath; third to fifth quills longest, the first usually shortest, and never longer than the sixth; outer three to five with inner webs sinuated. Tail long (nearly equal to the wing), usually rounded, occasionally even, and rarely slightly emarginated.

The above diagnosis is intended to cover the characters of this genus in its most comprehensive sense. In North America there are two strongly marked subgenera, which may be characterized as follows:

Accipiter. Less than one third of the tarsus feathered in front, the feathering widely separated behind; frontal scutellæ uninterrupted at the digito-tarsal joint. (Tarsal scutellæ fused into a continuous plate in adult males of the smaller species.)

Astur. More than one third (nearly one half) of the upper part of the tarsus feathered in front, the feathering scarcely separated behind; frontal scutellæ interrupted at the digito-tarsal joint, where replaced by small scales. (Tarsal scutellæ never fused.) Size larger than typical *Accipiter*.

In South America is found a third subgenus which may be distinguished from typical *Accipiter* as follows:

Accipiter. Five outer primaries with inner webs emarginated; fourth or fifth quill longest; inner toe not reaching middle of second joint of middle toe.

Hieraspizias. Four outer primaries with inner webs emarginated; third or fourth quills longest; inner toe reaching to or beyond middle of second joint of middle toe.

SUBGENUS *Accipiter* BRISSON.

Accipiter BRISS. ORN. I, 1760, 10. Type *Falconisus* LINN.

Nisus CUV. LEÇONS ANAT. COMP. I, TABL. OIS. 1799. Same type.

Cooperastur BP. REV. ET MAG. ZOËL. 1854, 538. Type *Falco stanleyi* AUD., = *F. cooperi* BP.

The species of this subgenus are generally of small size and slender form; but, with a graceful and apparently delicate structure they combine remarkable strength and unsurpassed daring. They differ from the species of *Astur* mainly in less robust organization. The species are very numerous, and most plentiful within the tropical regions. The Old World possesses about thirty nominal species. Tropical America has, so far as known, thirteen species, two of which are peculiar to Cuba. (These the reader may find carefully monographed in the Bulletin of the U. S. Geological and Geographical Survey of the Territories, Vol. II., No. 2, pp. 91-129.)

The two North American species may be distinguished as follows:

COMMON CHARACTERS. *Adults*. Above bluish slate or plumbeous, the tail with darker cross-bands and narrowly tipped with whitish; lower parts white, barred or transversely spotted with pinkish rufous or light brownish, the crissum plain white. *Young*. Above grayish brown, the feathers bordered, more or less distinctly, with rusty, and scapulars with large white spots, mostly concealed, however; tail-bands more distinct than in the adults, the spaces between them browner; lower parts white, sometimes tinged with buff (especially in younger individuals), longitudinally striped with brownish or dusky.

1. *A. cooperi*. Size large, the wing more than 8.50 inches. Tail decidedly rounded. Male: Wing, 8.85-9.40; tail, 7.80-8.30. Female: Wing, 10.00-11.00; tail, 10.00-10.50.
2. *A. velox*. Size smaller, the wing usually less than 8 inches. Tail even, or (in adult males) slightly emarginated. Male: Wing, 6.10-7.10; tail, 5.80-6.10. Female: Wing, 7.80-8.80; tail, 6.60-8.20.

Accipiter cooperi Bonap.**COOPER'S HAWK.**

Popular synonyms. Stanley's Hawk; Blue Chicken Hawk; Blue Hawk; Blue Quail Hawk; Swift Hawk; Blue-backed Hawk; Blue Darter.

Falco cooperi Br. Ann. Lyc. N. Y. ii, 1826, 433; Am. Orn. i, 1823, pl. 10, fig. 1.

Astur cooperi Bp. 1838.—AUD. B. Am. i, 1840, 98, pl. 24.

Accipiter cooperi DEKAY, Zool. N. Y. ii, 1844, 18, pl. 4, fig. 5.—Cass, in Baird's B. N. Am. 1858, 16.—BAIRD. Cat. N. Am. B. 1859, No. 15, 16.—COUES, Key, 1872, 112; Check List, 1874, No. 339; 2d ed. 1882, No. 495; B. N. W. 1874, 334.—RIDGW. Nom. N. Am. B. 1881, No. 431.

Nisus cooperi SCHLEG. Rev. Acc. 1873, 73.—B. B. & R. iii, 1874, 230.

Falco stanleyi AUD. B. Am. 1831, pls. 36, 141; Orn. Biog. i, 1831, 186.

Accipiter mexicanus Sw. F. B.-A. ii, 1831, 45.—Cass, in Baird's B. N. Am. 1853, 17.—BAIRD, Cat. N. Am. B. 1859, No. 16.

Nisus cooperi var. *mexicanus* B. B. & R. Hist. N. Am. B. iii, 1874, 231.

HAB. Whole of the United States and table-lands of Mexico; north in summer to New Brunswick, the Saskatchewan, and Washington Territory; south, in winter, to Costa Rica and Veragua; breeding throughout its United States range.

SP. CHAR. Wing, 8.70-11.00; tail, 7.80-10.50; culmen, 0.58-0.80; tarsus, 2.30-2.85; middle toe, 1.45-1.85. Fourth or fifth quill longest; first equal to or shorter than tenth; outer five with inner webs sinuated. Tail rounded. Tarsi usually distinctly scutellate.

Adult. Above slate-color, varying from a fine bluish to a brownish cast, the shafts of the feathers black. Pileum plumbeous black, the occipital feathers snow-white beneath the surface; primaries plain brownish slate, their shafts clear brown. Tail narrowly tipped with white, and crossed by four very regular, but sometimes not sharply defined, bands of dusky, narrower than the slaty ones, the last broadest, the first nearly obsolete, and concealed by the coverts, which are sometimes narrowly tipped with white. Lower parts white and rufous, in transverse bars, the shafts of the feathers black, and the rufous bars usually connected along the middle portion of the feathers; tibiae more deeply colored, the rufous usually predominating; crissum immaculate white. Lining of the wing white, irregularly spotted with deep rufous; inner webs of the primaries with transverse bands of dusky and white anterior to their emargination and silvery gray terminally, the dusky bands about seven in number on the longest quill, the two colors nearly equal in width. **Male.** Slate of the upper parts of a fine bluish cast; nape and sides of the head bluish ashy, the sides of the breast usually tinged with the same. Wing, 8.85-9.40; tail, 7.80-8.30; culmen, .60-.63; tarsus, 2.30-2.60; middle toe, 1.45-1.55. (Eight specimens.) **Female.** Slate of the upper parts of a brownish cast, nape and sides of the head dull rusty brownish, the sides of the breast without ashy tinge. Wing, 10.00-10.80; tail, 9.00-9.40; culmen, .70-.80; tarsus, 2.65-2.85; middle toe, 1.60-1.85. (Five specimens.) (**Colors in life.** Terminal half of bill deep black, basal half pale blue; cere greenish yellow; iris deep orange-red; tarsi and toes deep lemon-yellow; claws deep black.*)

Young. Above grayish brown, the feathers more or less bordered with rusty; the scapulars and upper tail-coverts with concealed white spots; the occiput blackish, with the bases of the feathers white, and the pileum and nape streaked with rusty. Tail grayish brown, tipped with whitish, and crossed by four bands of brownish black or dusky. Lower parts white, longitudinally striped with clear dusky brown, the shafts black. (**Colors in life.** Iris varying from greenish white to chrome-yellow; bill blackish terminally, pale blue basally; tarsi and toes varying from very pale greenish yellow to lemon-yellow; claws slate-black.)

*Fresh colors of an adult male killed January 16, 1867, at Mount Carmel, Illinois. Length, 17 inches; extent, 30.50 inches.

The extent of individual variation in this species, though very considerable, is limited by the terms of the above diagnosis.

This bold marauder is a common resident in all wooded portions of the State. Its habits and more prominent characteristics cannot be better described than in the following, by "J. M. W." in the *Ornithologist and Oölogist* for December, 1881, pp. 73, 74.

"Before transcribing my notes on the breeding habits of the vivacious little Sharp-shinned Hawk, we must pay our compliments to its larger congener. Indeed through the season it forces itself upon our notice in so many ways, and with such persistence, that we are obliged to respect its prior claims. When we go into the leafless woods, during the first week in April, for our earliest set of Buteos, the Cooper's Hawks are already paired and apparently ready to begin housekeeping. They feign alarm at our approach to the old haunts, and following us, scold us well as we go from nest to nest. But as usual with the sex when house-hunting, the females are capricious and not easily suited. The old home, though in good repair, is perhaps in a neighborhood where callers are too free, and ample time must be taken to choose a new tenement.

"Then again about the twenty-fifth of April, when we once more climb to our Buteos, hoping for a second clutch, we are surprised to find the first egg of a Cooper which has taken possession of this ready-furnished abode. The second week in May they are breeding commonly, and by the first of June they are so abundant here as to outnumber all the other Raptores. They will breed in old nests in the same low situations in hemlocks and young pines as the Sharp-shinned Hawk, but they frequent as well the tall deciduous woods, and I have taken eggs from dizzy heights on outlying prongs, away above the loftiest forks of the Buteos. Very rarely *A. cooperi* selects a new and unused site, but as a rule old nests are used, and often on a pile of rubbish in a crotch they will rear a very large superstructure. If the forks of the tree go up a little way without divergence, the pair will work for weeks and raise the nest three or four feet until it is bulkier than the home of any of our local *rapacie* except the Fishhawk. I know to-day where there are three such old Cooper's nests which are piled so high with brush that

standing on a level with the bottom of the nests it is difficult for a climber to reach inside. The males assist at intervals in bringing sticks, and unite with their mates in scolding any witness of their house-raising.

The fecundity of this Hawk, under the peculiar persuasion of the oölogist, is not so great as its small congener's, yet it will lay three clutches each year in as many nests, if the first and second sets are taken. Five eggs is the usual clutch, though I have seen four eggs incubated many times, and have taken an extreme clutch of six. The first egg laid is usually pale blue, the rest of the nest complement is lighter, and the eggs, as a whole, fade as incubation progresses. Two weeks are occupied in laying, and at the end of one week's incubation the eggs can be easily blown. Sets with markings are not rare; but the pigment is used sparingly, so as a rule a fair series of these eggs present few changes and are unattractive.

Coopers are the most deadly scourge in country farm-yards. While the Buteos give warning of their whereabouts by soaring far overhead for hours, and sometimes days, before dropping among the young poultry, the dreaded Accipiters, sailing very low, will suddenly start over a wall and be off with a chicken without notice. The old domestic cocks and Guinea-fowl will see a Buteo when but a speck in the sky, and on a too near approach to the earth of the common enemy sound an alarm which sends all the timid ones to cover. But even after repeated raids of the Cooper, his advance is so unheralded, and his dash so quick, that he gets off scot free, even though the farmer stands in his doorway with gun in hand."

Accipiter velox (Wils.)

SHARP-SHINNED HAWK.

Popular synonyms. Little Swift Hawk; Slate-colored Hawk; Bullet Hawk.

Falco fuscus GMEL. S. N. i, 1788, 280, (not of FABRICIUS, 1780).—NUTT. Man. i, 1833 87.

Accipiter fuscus BP. 1838.—CASS. in Baird's B. N. Am. 1858 18.—BAIRD, Cat. N. Am. B. 1859, No. 17.—COUES, Key, 1872, 212; Check List, 1874, 333; 2d ed. 1882, No. 494; B. N. W. 1874, 333.—RIDGW. Nom. N. Am. B. 1881, No. 432.

Astur fuscus AUD. B. Am. i. 1840, 100, pl. 25.

Nisus fuscus KAUP. 1850.—B. B. & R. Hist. N. Am. B. iii, 1874, 224.

Falco velox WILS. Am. Orn. v, 1812, 116, pl. 45, fig. 1.

Falco pennsylvanicus WILS. Am. Orn. vi, 1812, i, pl. 46, fig. 1.

HAB. The whole of North America; south, in winter, to Panama and the Bahamas; breeding nearly throughout the United States and northward.

SP. CHAR. Wing, 6.35-8.80; tail, 5.50-8.20; culmen, .35-.60; tarsus, 1.85-2.30; middle toe, 1.10-1.55. Fourth and fifth quills longest, third nearly equal to sixth, outer five with inner webs emarginated. Tail even or slightly emarginated.

Adult male. Above plumbeous, becoming gradually darker on the pileum, the feathers with blackish shaft-streaks. Tail rather lighter, usually browner, (sometimes with a narrow white terminal margin), crossed with four dusky bands. Occipital feathers pure white beneath the surface, and scapulars with large concealed roundish spots of the same. Lower parts mixed white and rufous, in transverse spots or bars, the rufous bars usually connected along the middle of the feather, the shaft being conspicuously darker. Throat and cheeks streaked but not barred. Crissum and anal region immaculate pure white. Tibiæ usually with the rufous predominating, rarely uniform rufous. Wing, 6.70-7.10; tail, 5.80-6.10; culmen, .38-.43; tarsus, 1.90-2.05; middle toe, 1.10-1.25.

Adult female. Similar to the male, but less bluish above, and the white of the lower parts less pure. Wing, 7.80-8.80; tail, 6.60-8.20; culmen, .48-.60; tarsus, 2.00-2.25; middle toe, 1.30-1.55.*

Young male. Above dark sepia, the feathers bordered terminally with rusty, those of the nape widely edged with the same, or with fulvous whitish; feathers of the pileum similarly but more narrowly edged with the same. Tail brownish gray, crossed by four to five well-defined, continuous, narrow bands of blackish. Scapulars and upper tail coverts with concealed large spots of white, and occipital region white beneath the surface. Beneath, white, with or without an ochraceous tinge, the anal region and crissum immaculate, the throat streaked with dusky; the breast, abdomen, sides, and flanks with broad stripes of dilute sepia, with darker shaft-streaks, these stripes sometimes dilating on the sides into chain-like series of spots; tibiæ with elliptical or tear-shaped stripes, or variously shaped spots, of dilute sepia, on a white or pale rusty ground. Wing, 6.35-6.95; tail, 5.50-6.30; culmen, .35-.40; tarsus, 1.85-2.05; middle toe, 1.05-1.25.

Young female. Exactly like the young male in markings and colors. Wing, 7.75-8.60; tail, 6.50-7.60; culmen, .45-.50; tarsus, 2.05-2.30; middle toe, 1.30-1.50.

Dr. Brewer gives us the following biography of this species, in *History of North American Birds*, Vol. III., pp. 227-229:

"Mr. Audubon regarded it as the very miniature of the Goshawk, in its irregular, swift, vigorous, varied, and yet often undecided, manner of flight, and on occasion greatly protracted. When in search of its prey, it is said to pass over the country, now at a moderate height, now close over the land, and with a surprising swiftness. It advances by sudden dashes, and pounces upon the

*Fresh colors of an adult female (No. 8,450, U. S. Nat. Mus.) shot at Mount Carmel, Ill., October 22, 1869. Terminal two thirds of bill deep black; basal portion pale blue; interior of mouth bright cobalt-blue, more purplish far back; cere, rictus, eyelids and naked "eye-brow" oil-green; iris deep orange-red; tarsi and toes brownish lemon-yellow; claws jet-black. Total length, 13 inches; extent, 84 inches.

object of its pursuit so suddenly as to render hopeless any attempt to escape. It has frequently been known to seize and kill a bird so large that it was unable to carry it, and had to drop to the ground.

"In nearly every instance the nest of this Hawk has been constructed in trees. It is usually large in proportion to the size of the bird, and its materials are somewhat elaborately put together; it is composed chiefly of large sticks and twigs, and the whole platform is covered with a thin lining of dry leaves, mosses, grass, etc. Mr. John Krider, of Philadelphia, found a nest in New Jersey, in the vicinity of that city, which was built on the edge of a high rock."

SUBGENUS *Astur* LACÉPÈDE.

Astur LACÉP. Menag. Mus. Hist. Nat. 1315, 505. Type, *Falco palumbarius* LINN.

Notwithstanding the vast difference in size between the typical species of *Astur* and those of *Accipiter*, the details of structure are essentially the same, the greatest differences between them being very nearly bridged over by species of intermediate size and structure.

North America possesses a single species of the subgenus *Astur*, and this is a near relative of *A. palumbarius*, but sufficiently distinct, having the plumage of the lower parts much more delicately penciled and the color of the upper parts more bluish than in the European species.

Accipiter atricapillus (Wils.)

AMERICAN GOSHAWK.

Popular synonyms. Blue Hen Hawk or Chicken Hawk.

Falco atricapillus WILS. Am. Orn. ii, 1808, 284, pl. 52, fig. 3.

Astur atricapillus BP. 1830.—NUTT. Man. 1833, 85.—CASS. in Baird's B. N. Am. 1853, 15.—BAIRD, Cat. N. Am. B. 1859, No. 14.—COUES, Key, 1872, 212; Check List, 1874, No. 340; 2d ed. 1882, No. 496; B. N. W. 1874, 338.—RIDGW. Nom. N. Am. B. 1881, No. 433.

Astur palumbarius var. *atricapillus* B. B. & R. Hist. N. Am. B. iii, 1874, 237.

Falco palumbarius "LINN."—AUD. B. Am. pl. 141; Orn. Biog. ii, 1834, 241 (*nec* LINN.).

Astur palumbarius AUD. Synop. 1839, 13; B. Am. i, 1840, 95, pl. 23.

Accipiter (Astur) palumbarius SW. & RICH. F. B.-A. ii, 1831, 39, pl. 26.

Astur atricapillus var. *striatulus* (part) RIDGW. in B. B. & R. Hist. N. Am. B. iii, 1874, 238, 239, 240 (adult).

HAB. Northern North America (except coast of Alaska, east and south of Kodiak); south in winter across greater part of the United States (Pacific coast excepted), breeding chiefly north of the United States. (Represented in the Pacific province by *A. atricapillus striatulus* RIDGW.)

SP. CHAR. *Adult male* (No. 44,940, Boston, Mass.: E. A. Samuels). Above continuous bluish slate, shafts of the feathers inconspicuously black. Tail darker and less bluish, tipped with white (about .25 of an inch wide) and crossed by five broad, faintly defined bars of blackish, these most distinct on inner webs; the first concealed by the upper coverts, the second partially so; the last, or subterminal one, which is about twice as broad as the rest, measuring about one inch in width. Primaries darker than the tail (but not approaching black). Forehead, crown, occiput, and ear-coverts pure plumbeous black, feathers snow-white beneath the surface, much exposed on the occiput; a broad conspicuous supra-auricular stripe originating above the posterior angle of the eye, running back over the ear-coverts to the occiput, pure white, with fine streaks of black; lores and cheeks grayish white. Lower parts white; the whole surface (except throat and lower tail-coverts) covered with numerous narrow transverse bars of slate; on the breast these are much broken and irregular, forming fine transverse zigzags; posteriorly they are more regular, and about .10 of an inch wide, the white a very little more. Chin, throat, and cheeks without transverse bars, but with very sharp shaft-lines of black; on breast, sides, and abdomen, a median longitudinal broad streak of slate on each feather, the shaft black; on the tibiae, where the transverse bars are narrower and more regular, the shaft-streaks are also finer; anal region finely barred; lower tail-coverts immaculate pure white. Lining of the wing barred more coarsely and irregularly than the breast; under surface of primaries with white prevailing, this growing more silvery toward the ends; longest (fourth) with six oblique transverse patches of slate, the outlines of which are much broken. Wing formula, 4, 5, 3-6-2, 1=10. Wing, 13.00; tail, 9.50; tarsus, 3.70; naked portion, 1.35; middle toe, 2.00; inner, 1.21; outer, 1.37; posterior, 1.00.

Adult female (No. 12,239, Brooklyn, N. Y.: J. Ackhurst). Almost precisely similar to the male. Slate above less bluish; bands on tail more distinct, five dark ones (about .75 of an inch in width) across the brownish slate; indistinct lighter bands indicated on outer webs of primaries, corresponding with those on inner webs; lores more grayish than in male; bars beneath more regular; longitudinal streaks blacker and more sharply defined. Wing, 14.25; tail, 11.25; tarsus, 1.60-2.20; middle toe, 1.95; inner, 1.40; outer, 1.45; posterior, 1.30.

Young male (No. 26,920, Nova Scotia, June: J. G. Winton). Plumage very much variegated. Head above, nape, and anterior portion of the back, ochraceous white, each feather with a median stripe of brownish black, these becoming more tear-shaped on the nape. Scapulars, back, wing-coverts, rump, and upper tail-coverts umber-brown; the feathers with lighter edges, and with large, more or less concealed spots of white, these largest on the scapulars, where they occupy the basal and middle thirds of the feathers, a band of brown narrower than the subterminal one separating the two areas; upper tail-coverts similarly marked, but white edges broader, forming conspicuous terminal crescentic bars. Tail cinereous umber, with five conspicuous bands of blackish brown, the last of which is subterminal, and broader than the rest; tip of tail like the pale bands; the bands are most sharply defined on the inner webs, being followed along the edges by the white of the edge, which, frequently extending along the margin of the back, crosses to the shaft, and is sometimes even apparent on the outer web; the lateral feather has the inner web almost entirely white, this, however, more or less finely mottled with grayish, the mottling becoming more dense toward the end of the feather; the bands also cross more obliquely than on the middle feathers. Secondaries grayish brown, with five indistinct, but quite apparent, dark bands; primaries marked as in the adult,

but much lighter. Beneath pure white, all the feathers, including lower tail-coverts, with sharp, central, longitudinal streaks of clear dark brown, the shafts of the feathers black; on the sides and tibiae these streaks are expanded into a more acuminate, elliptical form; the crissum only is immaculate, although the throat is only very sparsely streaked; on the ear-coverts the streaks are very fine and numerous, but uniformly distributed.

Young female, second year? (No. 26,921, Nova Scotia: W. G. Winton). Head above, nape, rump, and upper tail-coverts, with a deep ochraceous tinge; the character of markings, however, as in the male. Bands on the tail more sharply defined, the narrow white bar separating the black from the grayish bands more continuous and conspicuous; lateral feathers more mottled; grayish tip of tail passing terminally into white. Beneath with a faint ochraceous wash, this most apparent on the lining of the wings and tibiae; streaks as in the male, but rather more numerous, the throat thickly streaked.

Young male, first year (No. 49,662, Calais, Me.: G. A. Boardman). Differs from No. 26,921 as follows: On the wings and upper tail-coverts the yellowish white spots are less concealed, or, in fact, this forms the ground-color; secondary coverts ochraceous white, with two very distinct transverse spots of dark brown, rather narrower than the white spaces; tips of feathers broadly white; secondaries grayish brown, tipped with white, more mottled with the same toward bases, and crossed by five bands of dark brown, the first two of which are concealed by the coverts, the last quite a distance from the end of the feathers; upper tail-coverts white, mottled on inner webs with brown, each with two transverse broad bars, and a sub-terminal cordate spot of dark brown, the last not touching the edge of the feather, and the anterior bars both concealed by the overlaying feather. Tail grayish brown, tipped with white, and with six bands of blackish brown; these bordered with white, as in the older stage. Markings beneath as in the older stage, but those on the sides more cordate. Wing formula, 4, 5, 3-6-7-2-3-9, 1, 10. Wing, 14.00; tail, 11.50.

Some of the examples upon which the supposed western race "*A. atricapillus* var. *striatulus*," of "History of North American Birds" (Vol. III., pp. 238-240) was based, prove to be only very old birds of the true *A. atricapillus*. They differ from the ordinary plumage of the adult in the much finer pencilings of the plumage of the lower parts, and more bluish cast to the upper parts.

This daring and powerful hawk is by no means common in Illinois, where it makes its appearance only in winter. Mr. Nelson (page 119 of his list) says of it as follows:

"Formerly a common winter resident; now very rare. Dr. A. L. Marcy, of Evanston, found them quite plentiful during the winter of 1870-71, and obtained specimens. The only time I ever saw the bird alive, was the 3d of May, 1876, at Waukegan, when a fine adult specimen passed slowly overhead and disappeared toward the north."

GENUS *ASTURINA* VIEILLLOT.

Asturina VIEILL. Analyse, 1816, 24. Type *Falco nitidus* LATH.

SP. CHAR. Somewhat similar to *Astur*, but of much heavier and more robust build; tarsi longer and stouter, tail shorter and less rounded, wings longer, etc. Bill more elongated than in *Astur*, the cere longer, and the festoon on the commissure more developed; nostril oval, horizontal. Wings rather short, but less concave beneath than in

Astur; third to fourth quill longest; first shorter than eighth or ninth; four outer quills with their inner webs sinuated; tail considerably shorter than the wing, slightly emarginated, the lateral pair of feathers longest. Feet large and robust, when outstretched reaching almost to the end of the tail; tarsi very robust compared to the toes, about one and a half times as long as the middle toe, the frontal and posterior rows of transverse scutellæ very distinct and regular; outer toe longer than inner; claws strong, well curved, but not very acute. Sexes alike in color; old and young plumages very different.

This genus is peculiar to tropical America, and contains but two species, the *A. nitida* (LATH.) of South America and *A. plagiata* (LICHT.) of Middle America.

This genus *Asturina* is closely related to *Leucopternis* KAUP, but differs as follows:

Asturina. First quill longer than tenth. Tail even or emarginate, the lateral pair of rectrices usually longest. Nostril decidedly horizontal. Young and adult exceedingly different in plumage.

Leucopternis. First quill shorter than tenth. Tail slightly rounded, the lateral pair of feathers shortest. Nostril nearly circular, rather vertical than horizontal. Young and adult scarcely differing in plumage.

***Asturina nitida plagiata* (Licht.)**

MEXICAN GOSHAWK.

Buteo plagiatus LICHT. Nomencl. 1854. 3.

Asturina plagiata SCHLEG. Mus. P. B. Asturinæ, 1862, 1.—SCL. & SALV. Ex. Orn. 1869, 179, pl. 90.—COUES, Key, 1872, 218; Check List, 1874, No. 358; 2d ed. 1882, No. 527 ("*plagiata*")

Asturina nitida var. *plagiata* RIDGW. 1873.—B. B. & R. Hist. N. Am. B. iii, 1874, 246.

Asturina nitida plagiata RIDGW. Nom. N. Am. B. 1881, No. 445.

Asturina nitida CASS. in Baird's B. N. Am. 1858, 35 (not *Falco nitidus* LATH.).—BAIRD, Cat. N. Am. B. 1859, No. 33.

HAB. Whole of Middle America, south to Panama, north to southwestern border of United States; accidental (?) in southern Illinois (Richland Co., cf. RIDGW. Am. Nat. July 1872, p. 430).

SP. CHAR. *Adult male* (No. 51,343, Mazatlan, Mexico: Ferd. Bischoff). Above deep (rather dark) cinereous, becoming paler and finer on the head above, where the feathers have the shafts (finely) black; wings with indistinct lighter bars; rump almost black. Upper tail-coverts immaculate pure white. Tail pure black, tipped with pale grayish brown (this passing terminally into white); about $1\frac{1}{2}$ inches from the tip is a continuous band of white, half an inch in width; and a little over an inch anterior to this is another narrower and less perfect one. Primaries approaching black at ends; the tips broadly edged with dull white, as also the ends of secondaries. Head uniform fine delicate ashy, becoming white on chin and throat, and approaching the same on the forehead; shafts of feathers on head above, and neck, black; neck with indistinct paler transverse bars, these most distinct on jugulum; the breast, abdomen, sides, flanks, axillars, and tibiæ are regularly barred transversely with cinereous and pure white, the bars of each about equal, the white, however, gradually increasing, and the ashy bars narrowing posteriorly, the tibiæ being finely barred; lower tail-coverts immaculate pure white. Lining of the wing white, with very sparse, faint, transverse zigzag bars next the axillars and on larger coverts; under surface of primaries white anterior to their emargination, beyond which they are more silvery, leaving about an inch of the terminal portion black, the end of each, however, ashy; outer two quills crossed by narrow bars of ashy, the rest with indications of the same, near the shaft. Fourth quill longest; third scarcely shorter; second shorter than fifth; first intermediate between eighth and ninth. "Length 16.00; extent, 33.00." Wing, 10.50; tail, 7.00; tarsus, 2.60; middle toe, 1.50.

Adult female (No. 34,002, Mazatlan, June: Colonel Grayson). Cinereous, above darker, the fasciæ of the wings hardly observable; front and throat scarcely whitish; rump almost pure black; second tail-band much broken and restricted. Ashy prevailing on the jugulum, ashy bars beneath rather broader. Wings, 11.00; tail, 7.50; tarsus, 2.80; middle toe, 1.70.

Young male (No. 35,060, Rio de Coahuayana, W. Mexico, October: J. Xantus). Above, from bill to upper tail-coverts, dark bistre-brown, almost black; feathers of the head and neck edged laterally with pinkish ochraceous, or sulphuret-of-manganese color; scapulars with nearly whole outer webs of this color, they being blackish only along edges and at ends; middle wing-coverts spotted with the same. Secondaries and primaries faintly tipped with whitish; secondaries with indications of darker bands, and outer webs of primaries with still more obscure ones: upper tail-coverts white, with sagittate specks of black, one or two on each. Tail umber-brown (considerably lighter than the wings), tipped with pinkish ash (this passing terminally into dull white) and crossed with six or seven bands of black (these becoming gradually, but very considerably, narrower toward the base). Beneath white, with vinaceous tinge (this deepest laterally); breast, abdomen, and sides with large tear-shaped or cuneate spots of black; tibiæ with numerous transverse bars of the same.

Young female. Similar to last, but the brown lighter, and more approaching umber.

In both sexes the iris is brown, bill and claws black, or bluish black; cere, rictus, legs, and feet yellow.

Four other adults, with sex not indicated on labels, measure as follows:

Wing, 10.00-11.70; tail, 6.80-8.00; culmen, .90-.95; tarsus, 2.65-2.80; middle toe, 1.50-1.65.

A specimen of this tropical species was seen by the writer on Fox Prairie, in Richland Co., on the 19th of August, 1871.* It several times came so near that its peculiar markings could be seen with perfect distinctness, and the writer having previously handled many stuffed specimens there cannot be the slightest doubt as to the correctness of its identification.

*See *American Naturalist*, July, 1872, p. 430, and April, 1873, p. 201.

GENUS BUTEO CUVIER.

Buteo CUV. Lec. Anat. Comp. i, 1800, tabl. ois. Type, *Falco buteo* LINN.

Crazirex GOULD, Voy. Beag. Birds, 1841, 22. Type, *Polyborus galapagoensis* GOULD.

Tachytiorchis KAUP, Class. Saug. Vög. 1844, 143. Type, *Falco pterocles* TEMM.,—

Buteo albicaudatus VIEILL.

Poecilopternis KAUP, Isis, 1849, 329. Type, *Falco pennsylvanicus* WILS.

Buteola BONAP. Compt. Rend. xli, 1855, 651. Type, *Buteo brachyurus* VIEILL.

GEN. CHAR. Form robust and heavy, the wings long and rather pointed, the tail moderate and rounded, the bill and feet strong. Bill intermediate between that of *Astur* and that of *Parabuteo*. Wing long and rather pointed, the third to fifth quill longest, the first shorter than eighth; three or four with inner webs emarginated. Tail moderate, slightly rounded.

A. Four outer primaries with inner webs emarginated.

a. Tarsus more than twice as long as the middle toe.

1. *B. lineatus*. Tail always dusky, crossed by white or buffy narrow bands; outer webs of primaries, anterior to their emarginations, more or less spotted with white or ochraceous. *Adult*. Lower parts rufous (varying in intensity), more or less barred or transversely spotted with white (breast sometimes nearly uniform rufous). Tail and primaries slate-black, the former barred, the latter spotted on outer webs with pure white; lesser wing-coverts dark rufous or chestnut. *Young*. Lower parts dull whitish or buffy, longitudinally striped with dusky. Primaries and tail brownish dusky, the former crossed by narrow bands of pale grayish brown, buffy, or dull whitish, the latter spotted towards base with the same. *Male*. Wing, 12.90-13.50; tail, 7.70-9.70; tarsus, 2.70-3.25. *Female*. Wing, 13.35-14.25; tail, 9.00-10.00; tarsus, 3.10-3.20.

b. Tarsus less than twice as long as middle toe. Form decidedly more robust.

2. *B. borealis*. Tail rufous in adult, brownish gray banded with black, in young; outer webs of primaries without light spotting. *Adult*. Lower parts varying from entirely white, with a few dusky markings on abdomen and flanks, to dusky, with or without a rufous breast-patch. Tail rufous, usually with a single subterminal black bar, sometimes with indications of other bars, rarely without any bar. *Young*. Lower parts white, more or less varied with dusky, especially across abdomen, or almost wholly dusky (in some western specimens). Tail brownish gray, crossed by about 9 narrow bands of blackish. *Male*. Wing, 13.50-16.50; tail, 8.50-10.00; tarsus, 2.40-3.20. *Female*. Wing, 15.25-17.75; tail, 9.50-10.50; tarsus, 3.15-3.40.

3. *B. harlani*. Similar in form to *B. borealis*, but lateral toes nearly equal, and tibial plumes better developed, reaching to or beyond the base of the toes. Prevailing color blackish, the bases of the feathers pure white. *Adult*. Tail confusedly mottled with grayish, dusky and white, in variable relative amount, often mixed with rufous, and crossed by a subterminal bar or narrow band of dusky. *Young*. Tail crossed by 7-9 bands of grayish brown and dusky, the two colors about equal in width. *Male*. Wing, 14.25-15.00; tail, 8.80-10.00; tarsus, 2.75-3.25. *Female*. Wing, 15.75-16.20; tail, 9.10-10.00; tarsus, 2.90-3.50.

B. Only three outer primaries with inner webs emarginated.

5. *B. swainsoni*. Size large (wing more than 12 inches), the tips of the closed wings reaching nearly or quite to the end of the tail. Tail (of both adults and young) grayish brown (sometimes with a hoary cast), crossed by 9 or more narrow dusky bands, these less distinct basally. Upper parts nearly uniform dusky brown. *Normal plumage*. Lower parts whitish (or light colored), with a distinctly defined breast-patch, rufous in the male, brown in the female. *Melanistic plumage*. Lower parts entirely dusky, or with dusky prevailing, with or without admixture of rufous. *Young*. Above brownish black, with ochraceous edgings to feathers; beneath fine ochraceous, more or less marked with tear-shaped spots of

brownish black. (Palest-colored specimens nearly or quite free from spots beneath; melanistic examples with dusky prevailing.) *Male*: Wing, 13.70-15.25; tail, 7.00-9.00; tarsus, 2.10-2.65. *Female*: Wing, 14.75-16.50; tail, 8.80-9.00; tarsus, 2.50-2.70.

5. *B. latissimus*. Size small (wing less than 12 inches), the tips of the closed wings reaching only to the middle of the tail. *Adult*: Tail dusky, crossed by 2-4 broad bands of light brownish gray or brownish white, and narrowly tipped with whitish. Upper parts nearly uniform dusky brown, darker on the back; lower parts dull rufous brown varied by white spotting, the latter color prevailing posteriorly. *Young*: Tail grayish brown, crossed by about 5-7 narrow bands of dusky and tipped with whitish. Side of head and entire lower parts white or pale buff, relieved by a more or less distinct dusky "mustache;" a dusky streak down middle of throat, and various longitudinal markings of the same color on breast, sides, etc. *Male*: Wing, 9.85-10.70; tail, 6.50-7.00; tarsus, 2.15-2.80. *Female*: Wing, 11.00-11.40; tail, 7.00-8.00; tarsus, 2.20-2.80.

Buteo borealis (Gmel.)

RED-TAILED HAWK.

a. borealis. Eastern Red-tailed Hawk.

Popular synonyms. Chicken Hawk; White-breasted Chicken Hawk; Common Chicken Hawk or Hen Hawk.

Falco borealis GMEL. S. N. i, 1788, 266.—WILS. Am. Orn. i, 1803, pl. 52, fig. 1.—AUD. B. Am. i, 1831, pl. 51; Orn. Biog. i, 1831, 265.—NUTT. Man. ed. 2, i, 1840, 102.

Buteo borealis VIEILL. 1816.—NUTT. Man. i, 1832, 122.—AUD. Synop. 1839, 6; B. Am. i, 1840, 32, pl. 7.—CASS. in Baird's B. N. Am. 1858, 25.—BAIRD, Cat. N. Am. B. 1859, No. 23.—COUES, Key, 1872, 216; Check List, 1874, No. 351; 2d ed. 1882, No. 516; B. N. W. 1874, 352.—RIDGW. Nom. N. Am. B. 1881, No. 436.

Buteo borealis var. *borealis* B. B. & R. Hist. N. Am. B. iii, 1874, 282.

Falco leverianus GMEL. S. N. i, 1788, 266 (=young).—WILS. Am. Orn. i, 1803, pl. 52, fig. 2.—AUD. Orn. Biog. i, 1831, 265.

HAB. Eastern North America to and including the Mississippi Valley; north to the Fur Countries, south through eastern Mexico to Guatemala.

b. calurus. Western Red-tailed Hawk.

Popular synonym. Black Red-tail.

Buteo calurus CASS. Proc. Phil. Acad. vii, 1855, 281; in Baird's B. N. Am. 1858, 14; ib. ed. 1860, pl. 14.—BAIRD, Cat. N. Am. B. 1859, No. 20.

Buteo borealis var. *calurus* RIDGW. 1873.—B. B. & R. Hist. N. Am. B. iii, 1874, 286.

Buteo borealis *b. calurus* COUES, B. N. W. 1874, 286.

Buteo borealis calurus RIDGW. Nom. N. Am. B. 1881, No. 436b.—COUES, 2d Check List, 1882, No. 517.

Buteo montanus "NUTT." CASS. in Baird's B. N. Am. 1858, 26 (*nec* NUTT.).—BAIRD, Cat. N. Am. B. 1859, No. 24.

HAB. Western North America, from Rocky Mountains to the Pacific; north to Sitka, Alaska; south to southern Mexico.

c. krideri. Krider's Red-tailed Hawk.

Popular synonyms. White Red-tailed Hawk; White Hen Hawk or Chicken Hawk.

Buteo borealis var. *krideri* HOOPES. Proc. Phil. Acad. 1873, 283, pl. 5 (= young).—B. B. & R. Hist. N. Am. B. iii, 1874, 284.—COUES. Check List, 1874, No. 351c.

Buteo borealis *d. krideri* COUES, B. N. W. 1874, 351.

Buteo borealis krideri RIDGW. Nom. N. Am. B. 1881, No. 436.—COUES, 2d Check List, 1882, No. 519.

HAB. Eastern border of the Great Plains, from Minnesota to central Texas.

SP. CHAR. Third to fifth quill longest, the first always shorter than seventh (some-time shortest); four outer quills with inner webs distinctly emarginated. Tarsus less than twice as long as middle toe. *Adult.* Tail rufous, paler (sometimes whitish) at tip, and usually, crossed by a subterminal narrow band of black, often with more or less distinct indications of other narrow bars. Upper parts blackish brown (sometimes much mixed with white), nearly uniform on the back, elsewhere broken by more or less of paler transverse barring and spotting. Occipital feathers pure white at the base, but feathers of nape edged with dull rufous. Wings with indistinct lighter grayish brown bands, the tips of the remiges distinctly paler. Lower parts varying from nearly pure white, with few dark spots across the abdomen, to almost uniform blackish brown. Under surface of primaries plain white anterior to their emarginations. *Young.* Tail grayish brown, crossed by 9 or 10 narrow but usually sharply defined bands of blackish; colors otherwise much as in the adults but with less rufous.

The above characters cover the extreme variations in the plumage of this species that have come under my notice. The species varies not only to a great extent individually, but also geographically, a peculiar style of plumage prevailing in separate geographical areas of the country. The following geographical races are fairly well defined:

A. Never with dusky or rufous prevailing on lower parts; tail of adult usually with only one continuous dusky bar, sometimes with none.

α. borealis. Upper parts with dark brownish largely prevailing; abdomen and flank with conspicuous dusky spots. Tail deep rufous, usually with a distinct subterminal bar of black.

β. krideri. Upper parts with much white spotting; lower parts almost wholly white, with little or no dark spotting on abdomen and flanks. Tail light rufous, usually without a subterminal bar.

B. Frequently with rufous or dusky prevailing on lower parts. Tail of adult frequently with indications of numerous bars.

γ. calurus. Rarely but little darker than *borealis*; usually much darker, and not unfrequently almost uniform blackish brown.

α. borealis.

SP. CHAR. Adult. Upper parts rich blackish brown, approaching black on the back; scapulars and middle wing coverts edged and barred beneath the surface with dull white, and tinged along edges with ochraceous. Wings generally of a paler shade than the back; secondaries fading into nearly white at tips, and, with the greater coverts, obscurely barred with darker; primaries nearly black, tips edged with pale brown, this passing into whitish. Rump uniform blackish brown, the feathers obscurely bordered with rusty. Upper tail-coverts ochraceous white, nearly pure terminally, and with about two distinct transverse bars of deep rufous. Tail rich uniform lateritious rufous, passing narrowly into white at the tip, and about an inch (or less) from the end crossed by a narrow band of black. Head and neck with the feathers medially blackish brown, the edges rusty rufous, causing a streaked appearance; the rufous prevailing on the sides of the occiput, ear-coverts, and neck. The blackish almost uniform on the forehead and on the cheeks, over which it forms a broad "mustache"; lores and sides of frontlet whitish. Throat white, with broad stripes of pure slaty brown; lower parts in general ochraceous

white; tibiæ and lower tail-coverts immaculate; across the abdomen and flanks (immediately in front of the tibiæ) is a broad interrupted belt of longitudinal black blotches, those on the abdomen tear-shaped, on the flanks larger and more irregular, throwing off bars toward the edge of the feathers; whole pectoral area variegated only with a few shaft-streaks of black (these growing broader laterally), and sometimes washed with rusty. Lining of the wing ochraceous white, with sparse diamond-shaped spots of pale rufous, and shaft-streaks of darker; under surface of primaries white anterior to their emargination, beyond which they gradually deepen into black; the innermost ones are finely mottled with slaty, and with imperfect transverse bars of the same.

Male. Wing, 13.50-16.50; tail, 8.50-10.00; culmen, .95-1.08; tarsus, 1.40-3.20; middle toe, 1.60-1.70. Weight, 2½-3 lbs.

Female. Wing, 15.25-17.75; tail, 9.50-10.50; culmen, 1.00-1.15; tarsus, 3.15-3.40; middle toe, 1.70-1.80. Weight, 3-4 lbs.

Young (No. 28,154, Philadelphia, J. Krider). Above similar to the adult, but lacking entirely any rufous tinge, the scapulars and wing-coverts more variegated with whitish. Tail light grayish brown (very much lighter than the rump), tinged, especially basally, with rufous, narrowly tipped with white, and crossed with nine or ten narrow, curved bands of black; upper tail-coverts white, with broad bars of black. Head as in the adult, but the rufous wanting, leaving the streaks black and white; forehead more broadly white; chin and throat wholly white, the latter with a collar of dusky streaks across the lower part; whole pectoral region entirely immaculate, pure white; abdominal band as in the adult; tibiæ somewhat tinged with ochraceous, unvariegated.

In its typical form, *B. borealis* may usually be distinguished from the lighter-colored examples of *B. borealis calurus* by having the posterior lower parts (tibiæ and lower tail-coverts) free from transverse bars or other markings, and in the absence of transverse bars on the tail anterior to the usual subterminal one. These differences are by no means absolutely constant, however, since, while eastern specimens occasionally occur which have these parts more or less distinctly barred, western specimens with the same parts immaculate are sometimes found. Such, however, are in either case exceptional.

Young birds from the eastern side of the continent occasionally have the tibiæ more or less barred or spotted, but usually such markings, if present, are either small or faint in color compared with western specimens of corresponding age.

♂. calurus.

SUBSP. CHAR. *Adult.* Similar to *borealis*, but darker, or with more rufous and blackish in the plumage; tibiæ usually distinctly barred with rufous, or else nearly uniform rufous or dusky; throat usually with dusky prevailing, sometimes wholly of this color. Tail frequently with more or less distinct indications of numerous blackish bars. In melanistic individuals, which are not uncommon, the whole plumage nearly uniform sooty black or dark brown, the breast, however, usually paler, sometimes rufous or ferruginous. (Between this plumage and the lightest-colored individuals every possible intermediate coloration occurs.) *Young.* Much darker than the corresponding stage of *borealis*. In melanistic specimens, whole plumage blackish brown, varied only with fulvous edgings to the feathers and concealed white spotting; the tail grayish brown, with about nine broad black bars. In the lighter-colored individuals, the tibiæ with very distinct—usually heavy—transverse spots of dusky.

Adult male (five specimens from Nevada, collected by the author). Total length, 21.50-23.00 inches; extent, 49.00-53.00; weight, 2-3 pounds. Bill dull black terminally, light bluish basally; cere and rictus greenish yellow; iris deep hazel in some specimens, light yellow in others, in two specimens yellow on upper portion and brown below; legs and feet light yellow; claws black.

Adult female (five specimens from Nevada, collected by the author). Total length, 23.00-24.00 inches; extent, 54.00-57.00; weight, 3-4 pounds. Fresh colors as in the above-mentioned males. (Iris Naples yellow in one very black melanistic individual, deep hazel in a rufous-breasted melanistic specimen, and hazel in three light-colored examples.)*

The young bird of this western style is usually as different from that of the eastern as is the adult, and the essential differences are about the same,—i. e. darker colors, or a predominance, or rather, increase in size, of the dark markings. The numerous heavy transverse spots on the tibiae constitute a marked feature of the average young *calurus*, as compared with the almost, or sometimes entirely, immaculate white of those in *borealis*.

c. krideri.

SUBSP. CHAR. *Adult.* Similar to *borealis*, but beneath continuous pure white, without rufous tinge, and without distinct spots across the abdomen, or lacking them entirely; above much lighter, the brown, light rufous, and white being about equal in amount. Upper tail-coverts immaculate white; tail pale rufous, the shafts pure white, and the webs mixed with white along their edges, its amount increasing toward the base; no trace of a dusky subterminal bar, or else only indicated by badly defined spots.

Young. Differing from that of var. *borealis* in the immaculate, snowy white lower parts, nearly equal extent of the white and dusky on the upper parts, and whitish cast of the tail.

This fine bird, although far less numerous than the Red-shouldered Hawk (*B. lineatus*) is yet very common in most portions of the country. According to Mr. Horace A. King (in *Ornithologist and Oölogist*, Vol. IX., July, 1884, p. 81), "One of the commonest birds of prey to be found in northern Illinois, is the Red-tailed Hawk (*Buteo borealis*). A person will meet with them in all sorts of places, but they are most common in the vicinity of heavy timber. In driving through the country one will see them perched upon rail fences, trees by the way-side, sitting on the ground in stubble or pasture fields, or soaring over fields in search of their prey. When on one of his foraging expeditions, the Red-tail, on sighting his prey, will remain at the same place in the air by a continual flapping of the wings, when at the proper time he will dive swiftly and silently upon it."

* The color of the iris in this species (any race) is very inconstant. In the fully adult it may be either deep hazel, light hazel, light yellow, or partly brown and yellow; if the latter, the yellow usually occupies the upper portion of the iris. In immature birds the iris may be either clear light yellow, pale brown, or light grayish; the first, however, appears to be the usual color.

Two eggs of this species, unusually large and entirely free from markings, were obtained by the writer at Mount Carmel, on the 6th of March, 1867, and are now in the collection of the National Museum at Washington. The nest was on the summit of a tall black gum tree (*Nyssa sylvatica*), about ninety feet from the ground.

The claim of the western race of the Red-tailed Hawk rests on the capture of a single specimen "near Chicago in April, 1873," by Mr. C. H. Smith, as recorded by Mr. Nelson in his list, p. 119.

The occurrence in Illinois of the very strongly marked race known as Krider's Red-tailed Hawk, is verified by a specimen presented to the United States National Museum, by Mr. H. K. Coale, and obtained July 25, 1876, on the bank of the Des Plaines River, about 34 miles northwest of Chicago.

***Buteo harlani* (Aud.)**

HARLAN'S HAWK.

Popular synonyms. Black Warrior; Harlan's Buzzard.

Falco harlani AUD. B. Am. i, 1831, pl. 36; Orn. Biog. i, 1831, 441.

Buteo harlani BP. 1833.—AUD. Synop. 1839, 6; B. Am. i, 1840, 33, pl. 8.—CASS. in B. N.

Am. 1858, 24 (part; not desc. of supposed young, which=*B. borealis calurus*?).

—BAIRD, Cat. N. Am. B. 1859, No. 22.—COUES, Key, 1872, 216; Check List, 1874, No. 350;

2d ed. 1882, No. 515; B. N. W. 1874, 352.—B. B. & R. Hist. N. Am. B. iii, 1874, 292.

—RIDGW. Nom. N. Am. B. 1881, No. 433.

Buteo cooperi CASS. Proc. Acad. Nat. Sci. Phil. 1856, 253.

HAB. Southern portion of Mississippi Valley, from Louisiana and Texas, to southern Illinois and eastern Kansas; New Mexico; Pennsylvania? eastern Mexico? Guatemala.

a. Light phase.

Adult (No. 8,525, Santa Clara, California, October, 1856; Dr. J. G. Cooper. Type of *B. cooperi* CASS). Head, neck, and whole lower parts white; feathers of the head and neck with median longitudinal streaks of black, the white prevailing on the occiput and superciliary region, the black predominating over the cheeks, forming a "mustache"; throat with fine lanceolate blackish streaks; sides of the breast with broader, more cuneate markings of the same; flanks with narrow, lanceolate stripes, these extending sparsely across the abdomen; tibiae, and lower tail-coverts immaculate, the inner face of the former, however, with faint specks. Upper plumage in general dark plumbeous brown, inclining to black on the back; plumbeous clearest on primaries, which are uniformly of this color, the inner ones inclining to fine cinereous. Scapulars and wing-coverts spattered with white beneath the surface. Rump black; upper tail-coverts white tinged with rufous, and with irregular distant transverse bars of blackish. Tail with light rufous prevailing, but this broken up by longitudinal daubs and washes of cinereous, and darker mottlings running longitudinally on both webs; basally the ground color approaches white; tip white, and a distinct, but very irregular, subterminal band of black, into which the longitudinal mottlings melt; outer webs of lateral feathers entirely cinereous, and without the black band. Under side of the wing white with a large black space on the lining near the edge; under surface of primaries white anterior to their emargination, finely mottled with ashy, and with indistinct transverse bands terminally. Fourth quill longest; third shorter than fifth; second equal to sixth; first equal to tenth. Wing, 15.75; tail, 9.10; tarsus, 3.25; middle toe, 1.70.

Adult female? (No. 99,969, U. S. Nat. Mus., Gainesville, Texas: G. H. Ragsdale). Head and neck above white, each feather marked with a central guttate or acute-ovate spot of dusky brown, the whole under surface of the plumage, however, pure white. Back and scapulars mixed brownish gray, dusky brown, and white, in nearly equal proportion, the whole underlying portion of the feathers white; lesser and middle wing-coverts nearly uniform dusky brown, with a faint purplish gloss; greater coverts grayish brown, transversely spotted, or irregularly barred, with dusky, the concealed basal portion white; secondaries similar, but darker terminally, and narrowly tipped with white; primaries grayish brown, darker toward ends, indistinctly mottled with darker or lighter, the shorter quills with decidedly, though not abruptly, paler tips. Upper tail-coverts white, marked with an irregular subterminal blotch of dusky brown (continued, irregularly, along the shaft), the inner webs of some of them stained with ochraceous. Tail white, the outer webs of all the feathers confusedly mottled, chiefly near the edges, with brownish gray, these mottlings more coalesced, and also darker in color, near the end of the feathers, so as to suggest a poorly defined subterminal darker band; inner webs of all the rectrices, also the shafts, entirely white. Head, neck, and entire lower parts white, the first finely streaked laterally with dusky, the throat more broadly streaked, and from the rictus backward a broad stripe of dusky, formed of coalesced guttate streaks or spots, which at the lower part of the throat extend across, forming a narrow interrupted band; sides of jugulum marked with guttate spots of dusky brown; flanks and lower part of abdomen marked with guttate and lanceolate spots or streaks of very dark brown; front and inner sides of tibiae sparsely and irregularly marked with clear grayish brown; whole breast, anal region, and crissum, immaculate. Lining of wing white, sparsely and irregularly spotted with dusky, thus forming a patch on the anterior under wing-coverts; under surface of primaries, anterior to their emargination, faintly, sparsely, and irregularly mottled with grayish. Wing, 16.25; tail, 10.00; culmen, 1.10; tarsus, 2.85, the bare portion in front 1.75; middle toe, 1.75.

b. Dark phase.

Adult male (Lawrence, Kansas, October, 1871: in collection of Kansas University). General color deep, almost carbonaceous, black, showing much exposed white on the head, neck, and breast, all the feathers of which are snowy white beneath the surface, the black being merely in the form of tear-shaped spots on the terminal portion of the feather; chin, lores, and front pure white; upper parts in general, the posterior lower parts, and the lining of the wing, with the black unbroken, but all the feathers—except the under wing-coverts—more or less spotted with white beneath the surface, on a grayish ground, these spots being usually arranged in pairs on each side of the shaft, on the flanks; tail-coverts, above and below, spotted irregularly with bright rufous, in nearly equal amount with the black and white. Alulae, primary coverts, and primaries, with quadrate spots of plumbeous on their outer webs, forming transverse bands; under surface of primaries plumbeous gray except at ends, but much broken by coarse marbling of white, this prevailing anteriorly, where it is much confused, but posteriorly about equal with the grayish, and exhibiting a tendency to form quadrate spots. Tail, with the ground color white, but this nearly hidden on the upper surface by a longitudinal mottling of dark and light ashy, this growing more uniform terminally, where it becomes slightly suffused with reddish and crossed by a subterminal, broad, but broken and irregular, band of black, the tip again very narrowly grayish and reddish.

Wing formula, 4, 3, 5-2, 6; 1=10. Wing, 15.00; tail, 8.80; culmen, 1.00; tarsus, 2.75; middle toe, 1.50; lateral toes equal. Plumage of flanks, tibiae, and crissum remarkably lengthened and lax, the latter reaching within two inches of the tip of the tail, and the tibial plumes reaching to the base of the toes.

Adult female (No. 6,851, Rio Grande, lat. 32°: Dr. T. C. Henry, U. S. A.). Whole plumage purplish black, or chocolate-black, with a purplish lustre; feathers everywhere pure white at bases, this exposed, however, only on the occiput, or where the feathers are disarranged. Forehead, lores, and chin white. Secondaries and primaries more brown than other portions, crossed by distinct bands of black,—about six on the secondaries. Whole

lining of the wing and upper tail-coverts, continuous, unvariegated black. Under surface of the primaries ashy white, more slaty terminally; ends with distinct, and other portions with indistinct, mottled bars of dusky. Tail ashy brown on outer webs, white on inner; both with a confused, rather longitudinal mottling of blackish; terminally, there is a broad, nearly continuous subterminal band indicated by blotches, these mixed very slightly with a rufous tinge. Primaries injured by shot, therefore proportions of the quills cannot be determined. Wing, 15.75; tail, 9.10; culmen, 1.00; tarsus 2.90; middle toe, 1.60; outer, 1.15; inner, 1.15.

Young male (Gainesville, Texas, Nov. 16, 1876: G. H. Ragsdale*). Prevailing color dark sooty brown, nearly black, the entire plumage white beneath the surface, showing wherever the feathers are disarranged. Throat white, with a few streaks of sooty brown; lores whitish. Scapulars and larger wing-coverts with large concealed bars and spots of white; feathers of the rump, upper tail-coverts, flanks, tibia and crissum with indistinct roundish spots of pale fulvous, pale grayish brown and dirty white, on the edges of the feathers, the continuity of the dusky ground-color being thus broken. Remiges grayish brown, with distinct bands of sooty black, with a purplish reflection, these bands averaging about .50 of an inch in width, .60-.75 apart; on the secondaries they are three in number, exclusive of those concealed by the greater coverts and the very indistinct terminal one; rectrices similar to the remiges, but the black bars nearly equal in width to the interspaces (both averaging about .45 of an inch in width), and seven in number on the intermediate (not counting the nearly obsolete basal one); on the inner webs of the intermediate these bars are less regular, those toward the end of the feathers being decidedly zigzag and oblique; inner webs mottled with grayish next the shaft, white toward the edge, the bars narrower and more conspicuous than on the outer webs. Lining of the wing and axillars blackish dusky, irregularly spotted with white and pale fulvous; inner webs of primaries white anterior to their emarginations, this white relieved, however, by an irregular clouding and sprinkling of grayish.

Fourth quill longer; t; third and fifth, .35 of an inch shorter, and equal; second, 1.60; shorter than the fourth, and exceeding the sixth in length; first, 4.25 shorter than the fourth, and intermediate between the eighth and ninth.

Wing, 16.20; tail, 10.00; culmen, .93; tarsus, 3.50; middle toe, 1.70; outer toe decidedly longer than the inner

The specimen last described calls to mind at first sight the young of *Buteo abbreviatus*, on account of the numerous white spots which show wherever the feathers are disarranged. It is, however, more spotted below, and the general cast of the plumage is decidedly more brownish; while the proportions are, of course, entirely different. From melanistic young specimens of *B. borealis*, it differs in the conspicuous white spotting alluded to, in the decidedly greater width and distinctness of the black band of the remiges and rectrices, as well as the more hoary cast of the interspaces between the latter—especially on the *intermediæ*.

"This species, though smaller than the Red-tail, to which he regarded it as allied, Audubon thought greatly superior to it in flight and daring. Its flight is described as rapid, greatly protracted, and so powerful as to enable it to seize the prey with apparent ease, or effect its escape from its stronger antagonist, the Red-tail,

* This specimen was, at last accounts, in the collection of Dr. R. M. W. Gibbs, of Kalamazoo, Mich. (Cf. *The Naturalist and Fancier*, Grand Rapids, Mich., Vol. I., No. 8, August, 1877.)

which pursued it on all occasions. It had been seen to pounce upon a fowl, kill it almost instantly, and afterward drag it along the ground several hundred yards. It was not seen to prey on hares or squirrels, but seemed to evince a marked preference for poultry, partridges, and the smaller species of wild duck. He saw none of the young, but was told that they appeared to be of a leaden gray color at a distance, and at the approach of winter became as dark as their parents." (*Hist. N. Am. B.* Vol. III., pp. 294, 295.)

A fine adult male of this rare species was taken by Mr. Chas. K. Worthen, near Warsaw, Hancock county, in March, 1879. "Two of them were seen at the time, flying up the Mississippi river, apparently following the flight of water-fowl which were then coming north in great numbers."

Buteo lineatus (Gmel.)

RED-SHOULDERED HAWK.

Popular synonyms. Hen Hawk; Chicken Hawk.

Falco lineatus GMEL. S. N. i, 1788, 268.—WILS. *Am. Orn.* i, 1808, pl. 53, fig. 3.—AUD. *Orn. Biog.* i, 1831, 296.

Buteo lineatus JARD. 1832.—AUD. *Synop.* 1839, 7.—CASS. in Baird's *B. N. Am.* 1858, 28.—BAIRD, *Cat. N. Am. B.* 1859, No. 25.—COUES, *Key*, 1872, 217; *Check List*, 1874, No. 352; 2d ed. 1882, No. 520; *B. N. W.* 1874, 354.—B. B. & R. *Hist. N. Am. B.* iii, 1874, 275 (var. *lineatus*).—RIDGW. *Nom. N. Am. B.* 1881, No. 439.

Falco buteoides NUTT. *Man.* i, 1832, 100.

HAB. Eastern North America, from the British Provinces to Florida, and west to the Great Plains; Texas and eastern Mexico to Orizaba. (Represented in California and western Mexico by *B. lineatus elegans*.) Accidental in Scotland.

SP. CHAR. *Adult male* (No. 32,500, Washington, D. C., January). Head, neck, and interscapulars deep rufous (above becoming darker posteriorly), each feather with a median stripe of blackish brown. Throat and cheeks almost destitute of rufous tinge, the ground being dull white,—the dusky forming an indistinct "mustache," and an imperfect, obsolete collar (formed by confluent, or suffused streaks) across the throat. Breast, sides, abdomen, and tibiae rather light rufous, becoming paler posteriorly; breast with shaft-streaks of blackish; the rufous of sides of breast almost unvaried; abdomen, sides, and middle of the breast, with transverse bars of ochraceous white; tibiae uniform pale ochraceous; anal region and lower tail-coverts, immaculate white. Lesser wing-coverts chestnut rufous, feathers with black shaft streaks, these becoming larger posteriorly; scapulars and middle wing-coverts edged broadly with rufous, and indistinctly spotted on inner webs with white—this somewhat exposed; secondaries dark clear brown, tipped and crossed with two (exposed) bands of white; primaries black, fading at tips into dilute grayish brown, and with quadrate spots of white on outer webs. Rump uniform blackish brown; upper tail-coverts tipped and banded with black. Tail clear brownish black, crossed with six sharply defined narrow bands of white, the last of which is terminal, and the first two concealed by the upper coverts. Lining of the wing nearly uniform pale rufous, with very sparse, deeper rufous, somewhat transverse spots; under surface of primaries silvery white, crossed by broad bands, these where the white

is clearest being pale rufous, bordered with dusky, but as the white grows more silvery they darken into black; the longest (fourth) has eight of these spots, including the sub-terminal, very broad one. Fourth quill longest; fifth, just perceptibly shorter; third, a little shorter; second, considerably longer than sixth; first equal to ninth. Wing, 13.00; tail, 8.50; tarsus, 2.90; middle toe, 1.33.

Adult female (No. 11,991, Washington, D. C.: Dr. W. Wallace). Generally similar to the male, but rufous more extended, this tinging the outer webs of secondaries and primaries. On the under parts the rufous is rather deeper, and the tibiae are strongly barred, and even the lower tail-coverts have obsolete spots of the same. Wing, 13.75; tail, 9.00; tarsus, 2.90; middle toe, 1.50.

Young male (No. 1,210). Ground color of head, neck, and under parts white; feathers of head and neck with median stripes of dark clear vandyke-brown, leaving a superciliary space, and the ear-coverts scarcely striped; a blackish suffusion over cheeks, forming a "mustache," and large longitudinal spot of the same on middle of throat; breast, abdomen, sides, and flanks, with rather sparse, irregularly sagittate spots of clear vandyke-brown, those on the sides of breast more longitudinal; tibiae with a faint ochraceous tinge, and with sparse, small, and irregular specks of brown; lower tail-coverts with a very few distant isolated bars of the same. Upper parts generally, clear dark vandyke-brown; interseapulars and wing-coverts edged (most broadly beneath the surface) with pale rufous; middle wing-coverts with much white spotting on upper webs, partially exposed; wing-coverts generally, and scapulars, narrowly bordered with white; secondaries narrowly tipped with white, and crossed with about four (exposed) bands of paler grayish brown; primaries inclining to black; faintly margined at ends with whitish; outer webs anterior to the emargination, rufous white, with distant, narrow bars of blackish, these widening on inner quills; upper tail-coverts white with transverse spots of blackish. Tail dark vandyke-brown, narrowly tipped with white, and crossed with numerous narrow bands of pale grayish brown, these obsolete towards the base. Lining of the wing pale ochraceous, with a few irregularly cordate spots of dark brown toward edge of wing; under surface of primaries mostly white, the dusky bars not extending across the web, except on inner quills. Wing, 13.25; tail, 9.30; tarsus, 2.85; middle toe, 1.40.

Young female (No. 11,994, Washington, D. C., January: C. Drexler). Almost precisely similar; tibiae unspotted; light bands of the tail more sharply defined basally, and pale mottled rufous, instead of pale ashy brown. Wing, 14.50; tail, 9.60; tarsus, 3.10; middle toe, 1.45.

This is decidedly the most numerous of the larger hawks in most portions of Illinois, especially in the timbered districts. It does not differ much in its habits from other species, except that it is a very noisy bird, its very loud but plaintive and not unmusical cry of *kee'-oe, kee'-oe, kee'-oe*, being frequently heard, especially during the breeding season, most often uttered as the bird sails in broad circles high over the tree-tops. The food of the Red-shouldered Hawk consists chiefly of frogs, reptiles, and field mice, but it occasionally, like others of its tribe, makes a descent upon the poultry-yard.

Buteo swainsoni Bonap.**SWAINSON'S HAWK.**

Popular synonym. Brown Hawk.

Buteo vulgaris SW. & RICH. F. B.-A. ii, 1831, 41, pl. 27 (male ad.).—AUD. B. Am. I, 1840, pl. 6.
Buteo swainsoni BP. Comp. List, 1838, 3.—CASS. in Baird's B. N. Am. 1858, 19; ed. 1860, pl. 13 (female ad.).—BAIRD, Cat. N. Am. B. 1859, No. 18.—COUES, Key, 1872, 217; Check List, 1874, No. 354; 2d ed. 1882, No. 523; B. N. W. 1874, 355.—B. B. & R. Hist. N. Am. B. iii, 1874, 263.—RIDGW. Nom. N. Am. B. 1881, No. 442.

Buteo montanus NUTT. Man. ed. 1840, i, 112.

Buteo bairdii HOY, Proc. Phil. Acad. 1853, 451 (= young).—CASS. Illustr. 1855, pl. 41; in Baird's B. N. Am. 1858, 21.—BAIRD, Cat. N. Am. B. 1859, No. 19.

Buteo insignatus CASS. Illustr. 1854, 102, 193, pl. 41 (= melanistic phase); in Baird's B. N. Am. 1858, 23.—BAIRD, Cat. N. Am. B. 1859, No. 21.

Buteo oxypterus CASS. Proc. Phil. Acad. vii, 1855, 282 (= young); in Baird's B. N. Am. 1858, 30; ib. ed. 1860, pl. 15, fig. 2.—BAIRD, Cat. N. Am. B. 1859, No. 28.—COUES, Key, 1872, 218.

Buteo swainsoni var. *oxypterus* B. B. & R. Hist. N. Am. B. iii, 1874, 266.

HAB. Western North America, north to the Yukon and McKenzie River districts, south to Central America (Guatemala and Costa Rica), east to the Mississippi Valley (Illinois, Wisconsin, Arkansas, etc.); occasional visitant further eastward, especially north of the Great Lakes and St. Lawrence. Massachusetts (Brewster). Straggling (?) over South America, as far as Patagonia, Argentine Republic, and Masafuera.

SP. CHAR. Only three outer primaries with inner webs emarginated; third or fourth (usually the third) quill longest; first shorter than the sixth (usually about equal to—rarely shorter than—the seventh). Wing reaching nearly to the end of the tail; primaries exceeding secondaries by about one third the length of the wing. Tail even. Transverse scutellæ on front of the tarsus, 9-13. Color: tail grayish brown, or grayish, sometimes with a hoary cast, usually passing narrowly into whitish at the tip, and crossed by an indefinite number of very indistinct narrow bands of a darker shade. Colors of other portions extremely variable. *Adult.* Nearly uniform dusky brown above, the frontlet, concealed bases of occipital feathers, and the upper tail-coverts more or less mixed with white; beneath sometimes pure white, with a broad patch of uniform brown or rufous on the breast, and white throat-patch, but from this light extreme the lower parts vary to uniform dusky chocolate or sooty brown, through intermediate shades of ochraceous or rufous upon which ground deeper colored bars are visible on portions posterior to the pectoral patch; very rarely the lower parts are irregularly spotted with brown, while the pectoral patch is broken up into similar spotting by the admixture of more or less of white. In the extreme melanistic condition the bird is uniformly blackish brown, with white bars on the crissum. *Young.* Ochraceous and purplish black, in relative quantities varying according to the individual; the ochraceous forms the ground color, and usually predominates, but is sometimes much less in amount than the black; the tail is the same as in the adult.

a. Normal phase.

Adult. Above continuous blackish brown, the feathers usually with somewhat paler borders; outer scapulars and upper tail-coverts very rarely tinged with rufous—the latter usually more or less barred with white or ashy; occipital feathers white beneath the surface; primaries plain brownish black, without trace of bars on outer webs. Throat and chin more or less white, usually in form of a sharply defined patch; jugulum and breast brown, generally plain, very rarely spotted with whitish, the tint varying from rufous (male) to the color of the upper parts (female). Other lower parts varying from white to ochraceous (rarely almost rufous), generally more or less barred, or spotted transversely, with

dark brown or rufous—very rarely immaculate; crissum usually immaculate, but sometimes with faint and distant bars. Lining of the wing white, sometimes tinged with ochraceous, often immaculate, but generally sparsely (never heavily) spotted with rufous or brown. Under surface of the primaries cinereous (the outer two or three more whitish) sometimes plain, sometimes indistinctly barred with darker. *Male*. Breast-patch rufous with darker shaft-streaks. *Female*. Breast-patch dark grayish umber, or blackish brown (like the back).

Young. Above brownish black, with a faint purplish lustre, the feathers all paler on their borders; wing-coverts and scapulars more or less variegated with ochraceous or whitish spotting, this usually very conspicuous on the longer scapulars; upper tail-coverts ochraceous or whitish (their inner webs more brownish), barred with dusky. Tail as in adult. Ground color of the head, neck, and lower parts, ochraceous, varying in shade from very deep cream-color to nearly white; the feathers of the head, neck, anterior part of the back, and sides of the breast with median longitudinal tear-shaped spots of brownish black; lower parts generally spotted, sometimes everywhere, with black, and occasionally immaculate.

b. Melanistic phase.

Adult. Prevailing color plain blackish brown; the tibiae, lining of the wings, and sometimes the breast, inclining more or less to rufous. Crissum usually white, sometimes immaculate, generally barred with rusty or blackish; occasionally with dusky and whitish bars of equal width. No white on the throat, or else but little of it. *Young*. Brownish black, variegated with ochraceous spotting, in amount varying with the individual.

This, being a western species, here reaching the normal eastern limit of its range, is one of the rarer species in Illinois. The writer has never identified it with certainty anywhere in Wabash or adjoining counties; but Mr. Nelson found it breeding on Fox Prairie, in Richland county, during the summer of 1875, and obtained specimens.

In his list of the birds of northeastern Illinois (p. 119), Mr. Nelson records the following as to its occurrence in that portion of the State:

"Of rather rare occurrence in this vicinity. Have only noted it during the migrations. I obtained an immature specimen May 30, 1875, at Riverdale, Ill., and have since seen others. As this species breeds in southern Illinois it probably also breeds in the northern portions of the State."

Buteo latissimus (Wils.)**BROAD-WINGED HAWK.**

Falco pennsylvanicus WILS. Am. Orn. vi, 1812, 92, pl. 54, fig. 1 (not plate 46, fig. 1, which= *Accipiter velox*, young).—AUD. B. Am. i, 1831, pl. 91; Orn. Biog. i, 1839, 461.—NUTT. Man. i, 1832, 105.

Buteo pennsylvanicus BP. 1830.—AUD. Synop. 1839, 7; B. Am. 1840, 43, pl. 10.—CASS. in Baird's B. N. Am. 1858, 29.—BAIRD, Cat. N. Am. B. 1859, No. 27.—COUES, Key, 1872, 217; Check List, 1874, No. 355; 2d ed. 1882, No. 524; B. N. W. 1874, 360.—B. B. & R. Hist. N. Am. B. iii, 1874.—RIDGW. Nom. N. Am. B. 1881, No. 443.

Falco latissimus WILS. Am. Orn. vi, 1812, 92, pl. 54, fig. 1.

Buteo latissimus SHARPE, Cat. B. Br. Mus. i, 1874, 193.

HAB. Eastern North America, north to Hudson's Bay; eastern Middle America and south to Ecuador, Venezuela, and upper Amazon; Cuba (resident); and other West India islands.

SP. CHAR. *Adult.* Upper surface dark umber-brown, the feathers gradually paler toward edges; on the back the feathers more uniformly dusky, causing a prevalent blackish appearance. Rump and upper tail-coverts blackish vandyke-brown, the latter tipped with pure white, and with a concealed bar of the same, about the middle of each feather. Tail dull black, with an indistinct terminal band of dull brown, this fading terminally into whitish; across the middle of the tail a broad band of dull light umber (in some individuals approaching dull white) about three fourths of an inch in width; about as far anterior to the main band as this is from tip is another much narrower and less distinct band of the same color, crossing just beyond the ends of the coverts, or concealed by them. Primaries uniform brownish black, fading on the terminal edge into pale brown. Head above, and broad but inconspicuous "mustache," running from the rictus downward across the cheek, dull black; the crown posteriorly, with the occiput and nape, having the dull black much broken by lateral streaks of dull rufous on all the feathers; this dull rufous tint prevails on the rest of the head and neck, as well as the breast, leaving the lores and chin and lateral portion of the frontlet alone whitish; throat streaked with blackish. Beneath dull brownish rufous, that of the breast almost unvariegated; medially, however, are roundish spots of white on opposite webs, but these are not confluent; posteriorly, these spots become gradually more numerous and more transverse, forming on the flanks transverse bands, almost continuous; on the tibiae the white prevails, the rufous bars being more distant, and connected only by a brown shaft line; lower tail-coverts with less numerous transverse spots of dull rufous. Lining of the wing ochraceous white, with sparse, rather small, irregularly deltoid spots of dull rufous; under surface of the primaries unvariegated white, as far as their emargination, beyond which they are black. Fourth quill longest; third a little shorter; second intermediate between fifth and sixth; first about equal to the ninth. *Female* (extremes No. 30,969, Brookline, Mass., and No. 30,895, Mirador, Mexico—the latter the larger): Wing, 11.0-11.30; tail, 6.80-7.10; tarsus, 2.30; middle toe, 1.30. *Male* (No. 32,309, Moose Factory, Hudson's Bay Territory): Wing, 10.50; tail, 6.30; tarsus, 2.30; middle toe, 1.20.

Young, first year (No. 11,984, Washington, D. C.). The blackish above is much variegated, being broken by narrow rusty borders to the interscapulars, rump-feathers, and lesser wing-coverts, broader and more ochraceous borders to scapulars and greater wing-coverts, and partially concealed whitish spotting on the former. Upper tail-coverts white, with broad bars of blackish brown; secondaries and primaries edged terminally with whitish. Tail dull umber-brown, growing darker terminally, narrowly tipped with white, and crossed with six indistinct, narrow bands of dusky, the (concealed) bases of all the feathers white. Superciliary region, cheeks, chin, throat, and entire lower parts delicate pale ochraceous or whitish cream-color; a conspicuous "mustache," a median longitudinal series of streaks on the throat, large longitudinal ovate spots on sides of breast, cordate spots on sides and flanks, and sagittate spots on tibiae, clear blackish brown. The ochraceous deepest on the abdomen and crissum. Wing beneath as in adult.

Measurements.

	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.	Specimens.
Male	9.85-10.70	6.50-7.00	.70 ...	2.15-2.80	1.20-1.33	11
Female	11.00-11.40	7.00-8.00	.70-.78	2.20-2.70	1.30-1.40	14

"Audubon characterizes this Hawk as spiritless, inactive, and deficient in courage, seldom chasing other birds of prey, but itself frequently annoyed by the little Sparrow-Hawk, the Kingbird and Martin. It only attacks birds of a weak nature, young chickens and ducklings, and feeds on small animals and insects. It is usually found singly, is easily approached, and when wounded throws itself on its back, erects its top feathers, utters a hissing sound, and attempts to defend itself with its talons.

"A nest of this bird, found by Mr. Audubon, is said to have been about the size of that of the Crow, and to have been placed in the larger branches of a tree, near the trunk. It was composed externally of dry sticks and briars; internally, of small roots, and lined with numerous large feathers. The nest found by Professor Adams, near Middlebury, Vt., was quite large, and was coarsely constructed of sticks, and lined only with fibrous roots and fine grass. In this instance the eggs were three. This is the more usual number, though occasionally four or five are found." (*Hist. N. Am. B.*)

GENUS **ARCHIBUTEO** BREHM.

Archibuteo BREHM, Isis, 1828, 1269. Type *Falco lagopus* GMEL.

CHAR. Similar to *Buteo*, but bill and feet weaker, wings longer, and tarsi feathered in front, to the toes. Bill small, compressed anteriorly, but very broad through the gape; upper outline of the cere ascending basally; nostril broadly oval, nearly horizontal. Tarsus densely feathered in front and on the sides down to the base of the toes; naked behind, where covered with irregular scales. Tarsus more than twice as long as the middle toe; basal half of the toes covered with small scales; outer toe longer than the inner; claws long, strongly curved, acute. Feathering of the head and neck normal. Wing very long; the third to fourth quill longest; first shorter than seventh; outer four or five with inner webs deeply emarginated. Tail moderate, rounded. Plumage full and soft.

The relationship of this well-marked genus appears to be nearest to *Buteo* and *Circus*, with an approach to *Circuætus* in character of the plumage, especially the wing.

The two North American species are exceedingly distinct and may readily be separated by the following characters:

1. **A. lagopus sancti-johannis.** Bill comparatively narrow at the base and compressed terminally. Tarsus not more than 3 inches. Breast never immaculate white; no rufous on upper parts or tibiae. *Adult:* Tall with several bands. *Light phase* with white prevailing, this much broken however, by dusky spotting, the spots rather coalesced on pectoral region. *Melanistic phase* sometimes uniform coal-black (more commonly dark brownish), with white lores, white under side of quills, and light (grayish or white) narrow bands on tail; *Young:* Terminal half (or less) of tail grayish brown, without bars, basal portion white (usually unvaried). *Light phase* grayish brown above, with dusky streaks and fulvous or buffy edgings; beneath ochraceous or buffy whitish, the belly and flanks usually dark brownish; breast streaked with brown. *Melanistic specimens* blackish brown, sometimes nearly uniform, but usually more or less streaked with fulvous edgings to the feathers. *Male:* Wing, 15.75-16.80; tail, 9.00-10.00; tarsus, 2.75-2.80. *Female:* Wing, 16.15-18.00; tail, 9.00-11.00; tarsus, 2.80-3.00.
- **A. ferrugineus.** Bill very broad, and somewhat depressed, at the base, the gape almost "fissirostral." Tarsus more than 3 inches. Breast usually immaculate white (rufous in melanistic specimens); upper parts and tibiae rich rufous in adults. *Adult, light phase:* Upper parts and tibiae fine rufous, the former with tear-shaped stripes, or spots, the latter with transverse bars of dusky. Tail white washed with ashy, and more or less stained with light rufous. *Melanistic phase:* Prevailing color deep chocolate-brown, more or less varied with rufous; tail as in the light phase. *Young, light phase:* Above grayish brown, the feathers edged with ochraceous or fulvous; tibiae white, usually more or less barred with dusky; tail white only on basal portion and on inner webs, the terminal half (or more) grayish brown, usually with several more or less distinct darker bars. *Male:* Wing, 15.90-17.00; tail, 9.50-10.50; tarsus, 3.10-3.45. *Female:* Wing, 17.00-18.80; tail, 10.50-11.00; tarsus, 3.20-3.40.

Archibuteo lagopus sancti-johannis (Gmel.)

AMERICAN ROUGH-LEGGED HAWK.

Popular synonyms. Black Rough-leg; Black Hawk.

Falco sancti-johannis GMEL. S. N. i, 1788, 273.—AUD. Orn. Biog. ii, 1831, 381.

Buteo sancti-johannis CUV. 1817.—NUTT. Man. i, 1832, 98.

Archibuteo sancti-johannis GRAY, 1849.—CASS. in Baird's B. N. Am. 1858, 33.—BAIRD, Cat. N. Am. B. 1859, No. 31.

Archibuteo lagopus var. *sancti-johannis* COUES, Key, 1872, 218; Check List, 1874, No. 356; B. N. W. 1874, 361.—B. B. & R. Hist. N. Am. B. iii, 1874, 304.

Archibuteo lagopus sancti-johannis RIDGW. Nom. N. Am. B. 1881, No. 447.—COUES, 2d Check List, 1882, No. 525.

Falco lagopus WILS. Am. Orn. iv, 1821, pl. 33, fig. 1 (*nec* BRÜNN).—AUD. B. Am. 1831, pls. 166, 422; Orn. Biog. ii, 1831, 277.

Buteo lagopus SW. & RICH. F. B.-A. ii, 1831, 52, pl. 28.—NUTT. Man. 1832, 97.—AUD. B. Am. i, 1840, 46, pl. 11.

Archibuteo lagopus BP. 1850.—CASS. in Baird's B. N. Am. 1858, 32.—BAIRD, Cat. N. Am. B. 1859, No. 30.

Falco niger WILS. Am. Orn. i, 1812, pl. 53, figs. 1, 2.

HAB. Whole of North America, breeding in arctic and subarctic districts. (The true *A. lagopus* occurs in western Alaska.)

a. Normal plumage.

SP. CHAR. *Adult male* (No. 43,073, Fort Resolution, June; J. Lockhart). Ground color of the upper parts dull umber-cinereous, this more rufous on the shoulders, and dull white on nape, scapulars, inner secondaries, and upper tail-coverts; rump entirely black, feathers bordered with whitish. All the feathers above with central oblong or irregular spots of black, this color predominating on top of head, and forming transverse bands across the wing-coverts and secondaries; upper tail-coverts pure white

each marked with an exceedingly irregular transverse spot of black. Tail white on basal two thirds, and narrowly, but sharply tipped with the same; subterminal portion pale mottled cinereous, with a very broad zone of black next the terminal white, and anterior to this three narrowed and more irregular bands of the same. Primaries blackish cinereous, with indistinct darker bands. Ground color of head and lower parts dull white; cheeks thickly streaked with black; ear-coverts and throat more sparsely streaked; forehead and sub-orbital region plain whitish. Breast with large, longitudinal but very irregular, oblong spots of dark brown, these largest and somewhat confluent laterally; lower part of breast with much less numerous and less longitudinal spots; tibiae strongly tinged with rusty, and with tarsus, abdomen, crissum, and flanks having irregular transverse spots of blackish brown; lower tail-coverts unvariegated. Lining of wing white, with numerous spots of black, these becoming more rusty towards the axillars; a large space of continuous clear black, covering the under primary coverts and the coverts immediately anterior; under surface of primaries and secondaries pure white, the former becoming black at ends, the latter ashy; no bars, except toward shafts of the latter. Fourth quill longest; third equal to fifth; second intermediate between fifth and sixth; first equal to eighth. Wing, 16.50; tail, 9.00; tarsus, 2.50; middle toe, 1.30; bill from base of cere, 1.30; culmen, .90.

Adult female (No. 23,156, Philadelphia, Pa.: J. Krider). Generally similar to the male. On head and nape, however, the yellowish white predominates, the central black being much reduced; on the other hand, there is less white on the upper parts, the dull cinereous drab being much more evenly spread; darker markings less conspicuous. Tail white only at the base, the remaining portion being pale cinereous drab crossed with four or five distinct, very regular bands of black, the tip being very broadly ashy. Flanks with ground color light umber-drab, and marked with transverse bands of black. Lower surface generally as in the male; tail-coverts with two or three blackish spots, apparently out of place. Fourth quill longest; fifth much shorter than third; second intermediate between fifth and sixth; first intermediate between seventh and eighth. Wing, 17.00; tail, 9.00; tarsus, 2.40; middle toe, 1.30; bill from base of cere, 1.30; culmen, .85.

Young (No. 25,934, United States). Upper surface generally light umber, becoming lighter on scapulars and middle wing-coverts, but showing nowhere any trace of spots or bands; wings, scapulars, and back with blackish shaft-streaks, primaries approaching black toward ends, becoming white basally; upper tail-coverts white, with a hastate stripe of brown along shaft; tail, basal half white, terminal half plain drab, becoming darker terminally, the tip narrowly white. Head, neck, and lower plumage in general, white stained with ochraceous, this deepest on tibiae and tarsi; head and neck streaked with dark brown, ear-coverts almost immaculate; breast with oblong spots of clear brown; flanks, abdomen, and anal region continuous uniform rich purplish vandyke-brown, forming conspicuous transverse belt; tibiae and tarsi scarcely varied, the few markings longitudinal; lower tail-coverts immaculate. Under side of wing much as in adult; black area, however, more extended; lining much tinged with rufous, and with longitudinal streaks of dark brown.

b. Melanistic phase.

Adult male (No. 28,153, Philadelphia: J. Krider). General plumage blackish brown, the head streaked by whitish edges of the feathers; wing-coverts, secondaries, primaries, and tibial plumes paler terminally; tarsi mottled with whitish; upper and lower tail-coverts tipped indistinctly with white. Tail narrowly tipped with dull white, and with about five nearly obsolete pale ashy bands. Lining of wing black, spotted with white near edge; whole under surface of the primaries pure white anterior to their emargination, beyond which they are black. Third and fourth quills equal and longest; second intermediate between fifth and sixth; first shorter than seventh. Wing, 16.00; tail, 8.85; tarsus, 2.45; middle toe, 1.25.

Adult female (No. 12,008, Philadelphia: C. Drexler). Continuous pure coal-black; forehead white; occiput same beneath surface. Tail paler at tip, and crossed with four ill-defined though continuous bands of ashy white, the last of which is distant over two and a half inches from the tip; lower tail-coverts with a few white spots. Whole lining

of wing glossy coal black; under surface of primaries, anterior to their emargination, white mottled with ashy. Fourth and fifth quills equal and longest; third only a little shorter; second a little longer than sixth; first intermediate between seventh and eighth. Wing, 16.50; tail, 9.00; tarsus, 2.50; middle toe, 1.20.

Young. Similar, but the tail dusky, growing whitish toward the base, and without any bars.

A very fine adult male, representing the very extreme of the black phase, shot at Mount Carmel, Illinois, December 15, 1874, measured 21.00 inches in length by 50.00 in extent of wings; bill black, light blue basally, the lower mandible tinged with yellow; cere and rictus rich chrome-yellow; eyebrow olivaceous; iris burnt umber; toes rich chrome-yellow, the claws black.

This fine hawk is a winter resident in Illinois, but its abundance varies greatly with different years. From Dr. Brewer's account of its habits we quote as follows:*

"Audubon never met with this species south of North Carolina nor west of the Alleghanies. He regarded it as a sluggish bird, confining itself to the meadows and low grounds bordering the rivers and salt marshes, where its principal food appeared to be moles, mice, and other small quadrupeds. He has never known it to attack a duck on the wing, although it will occasionally pursue a wounded one. Except when alarmed, it flies low and sedately, and manifests none of the daring courage or vigor so conspicuous in most hawks. They are also described as somewhat crepuscular in habit, watching for their food long after sunset, and Mr. Richardson speaks of their hunting for their prey 'by the subdued daylight which illuminates even the midnight hours in the high parallels.' For these nocturnal hunts it is well fitted by the softness of its plumage, which renders its flight noiseless, like that of the more nocturnal birds."

In his list of the birds of Northeastern Illinois, Mr. Nelson refers to this species (pp. 119, 120) as follows: "Arrives in large numbers the first of October, and after remaining for a few weeks the majority pass further south for the winter. The last of February and first of March they depart for the north. Exceedingly shy except while migrating, and in consequence but few are shot. Mr. C. H. Smith captured alive a fine specimen in the black plumage, in the spring of 1874, and kept it until the early part of summer, when the hot weather caused its death."

For noble presence and piercing eye this bird has few equals among our Falconidæ. The specimen above mentioned bore a striking resemblance to a Golden Eagle.

* *Hist. N. Am. B.* iii, pp. 307-309.

Archibuteo ferrugineus (Licht.)**FERRUGINOUS ROUGH-LEGGED HAWK.**

Popular synonym. California Squirrel Hawk.

Falco ferrugineus LIGHT. Abh. K. Akad. Berl. 1838, 429.

Archibuteo ferrugineus GRAY, 1844.—CASS. in Baird's B. N. Am. 1853, 34.—BAIRD, Cat. N. Am. B. 1859, No. 32.—COUES, Key, 1872, 218; Check List, 1874, No. 357; 2d ed. 1892, No. 526; B. N. W. 1874, 363.—B. B. & R. Hist. N. Am. B. iii, 1874, 300.—RIDGW. Nom. N. Am. B. 1881, No. 448.

HAB. Western United States, east to the Mississippi Valley and Texas; north to the Saskatchewan, south to table-lands of Mexico.

SP. CHAR. *Adult male* (No. 41,719, Fort Whipple, Arizona, Dec. 2, 1864; Dr. Coues). Ground color of head and neck white; each feather with a median streak of black, these growing broader posteriorly; and along the upper border of the ear-coverts so blended as to form an indistinct stripe back from the eye. Entire lower parts (except tibiæ) and whole under surface of the wing continuous pure white; breast with a faint tinge of delicate ochraceous, tibiæ and tarsi reddish white, tinged with or inclining to deep ferruginous on upper portion, and with numerous transverse bars of dark-r ferruginous and blackish; sides of the breast with a very few hair-like shaft-streaks of black; flanks with a few distant, dark ferruginous bars; axillars with two or three cordate spots of ferruginous near ends; feathers of the lining next the body, with blended, irregularly hastate spots of rufous; under primary coverts shading into cinereous on terminal half, and with indistinct broadly hastate spots of a darker shade of the same; primaries slaty beyond their emargination, deepening gradually toward their tips. Back, scapulars, and lesser and middle wing-coverts fine rufous, each feather with a broad median, longitudinal spot of brownish plumbeous-black, these on the back rather exceeding the rufous; longer wing-coverts and secondaries ashy amber, with very indistinct transverse bands of darker; primary coverts more ashy, and more distinctly banded; primaries fine chalky cinereous, this lightest on outer four; shafts pure white. Rump nearly uniform brownish black,—posterior feathers rufous with median black blotches; upper tail-coverts snowy white on outer webs, inner webs more rufous; a few concealed blackish transverse spots. Tail pale pearly ash, becoming white basally, and with a wash of dilute rufous along the edge of outer webs; inner webs white, with an ashy tinge thrown in longitudinal washes; outer feathers nearly white, with faint pale ashy longitudinal mottlings; shafts of tail-feathers pure white. Fourth quill longest; third but little shorter; second very much shorter than fifth; first intermediate between seventh and eighth. Wing, 16.75; tail, 9.20; tarsus, 2.95; middle toe, 1.35. "Length, 22.50; extent, 54.50. Iris clear light yellow; cere, edges of commissure, and feet bright yellow; bill very dark bluish horn; mouth, purplish flesh-color, livid bluish along edges."

Young female (No. 41,720, Fort Whipple; Dr. Coues). Almost exactly like the male, but black spots on rufous portions of upper parts much restricted, forming oblong spots in the middle of each feather; rump almost entirely rufous, variegated, however, with black. Longitudinal lines on breast more distinct; transverse bars on flanks and abdomen more numerous; third and fourth quills equal and longest; second intermediate between fifth and sixth; first equal to eighth. Wing, 17.25; tail, 9.75; tarsus, 2.95; middle toe, 1.40. "Length, 23.25; extent, 56.50. Iris light ochraceous brown."

Young female (No. 6,883, Los Angeles, California; Dr. Heermann). General plumage above grayish brown, interseapulars, scapulars, lesser and middle wing-coverts, and feathers of head and neck, edged laterally with light rufous; secondaries passing broadly into pale ashy at ends; primaries slaty brown with obscure darker bands; no appear-

ance of these, however, on secondaries; rump entirely blackish brown; upper tail-coverts wholly white. Tail hoary slate, basal third (or more) white, the junction of the two colors irregular and broken; tip obscurely paler; feathers obscurely blackish along edges, and with obsolete transverse spots of the same; white prevailing on inner webs. Beneath entirely pure white scarcely variegated; tibiæ and tarsi with a few scattered small transverse spots of blackish; flanks with larger, more cordate spots of the same. (Breeds in this plumage.)

This magnificent hawk, which Dr. Coues justly styles the "handsomest of the North American Falconidæ," is perhaps little more than a straggler to Illinois. It has been seen by the writer only in the far West, where the few observed were sailing majestically overhead, describing broad circles, and resembling the Golden Eagle in the manner of their flight. At such times it may be immediately distinguished from *A. sancti-johannis* by the snowy white of its lower plumage, which, as seen from below, is the predominating color of the bird.

GENUS *AQUILA* BRISSON.

Aquila BRISS. ORN. I, 1760, 419. Type (by elimination), *Falco chrysaëtos* LINN.

GEN. CHAR. Form robust and structure powerful; bearing and general aspect of *Buteo* and *Archibuteo*. Wing long, the primaries long and strong, with their emarginations very deep. Tail rather short, slightly rounded or wedge-shaped. Bill stronger than in the preceding genera, its outlines nearly parallel, and the tip somewhat inclined backward at the point; commissure with a more or less prominent festoon; nostril narrowly oval, vertical; skin of the cere very hard and firm. Superciliary shield very prominent. Feet very strong, the membrane between the outer and middle toes very much developed; tarsus less than twice as long as the middle toe; outer toe equal to, or longer than the inner; claws very long and strong, very much graduated in size; scutellæ of the toes small except on the terminal joint, where they form broad transverse plates; tarsi densely feathered all round down to the base of the toes; tibial plumes well developed, loose-webbed, their ends reaching down to or beyond the base of the toes. Feathers of hind neck and occiput lanceolate, acute, and distinct, forming a "cape" of differently formed feathers. Third to fifth quill longest; first shorter than the seventh; outer five or six with their inner webs deeply emarginated.

This genus is almost peculiar to the Old World, where about seventeen so-called species are known, while America has no member of the genus exclusively its own, the single North American species being the same as the European one. Though the details of external structure vary somewhat, and the size ranges from that of *Buteo latissimus* to that of a sea-eagle (*Haliaeetus*), the generic characters given in the above diagnosis apply equally well to all the species.

Aquila chrysaëtos (Linn.)**GOLDEN EAGLE.**

Popular synonyms. Mountain Eagle; Ring-tailed Eagle; Black Eagle.

Falco canadensis LINN. S. N. ed. 10, i, 1758, 88.

Aquila canadensis WILS. Am. Orn. i, 1808, pl. 55, fig. 1.—Cass. in Baird's B. N. Am. 1858, 41.—BAIRD, Cat. N. Am. B. 1859, No. 39.

Aquila chrysaëtos var. *canadensis* RIDGW. 1873.—B. B. & R. Hist. N. Am. B. iii, 1874, 214.

Aquila chrysaëtos canadensis RIDGW. Nom. N. Am. B. 1881, No. 449.

Falco chrysaëtos LINN. S. N. ed. 10, i, 1758, 88.

Aquila chrysaëtos DUMONT. Dict. Sci. Nat. i, 1816, 339.—AUD. B. Am. i, 1840, 50, pl. 12; Synop. 1839, 9.—COUES, Key, 1872, 219; Check List, 1874, No. 291; 2d ed. 1882, No. 429; B. N. W. 1874, 368.

Falco fulvus "LINN." WILS. Am. Orn. vii, 1813, pl. 55, fig. 1.

Aquila fulva NUTT. Man. i, 1832, 62.

HAB. Whole of North America, south to elevated regions of Mexico; breeding within the United States chiefly in mountainous districts.

SP. CHAR. *Adult male* (No. 24,167, Fort Crook, California, December 25: D. F. Parkinson). General plumage sooty blackish, this deepest on the head, throat, lower surface in general, under surface of the wings, back, scapulars, shoulders, secondaries, primaries, and rump; middle and secondary wing-coverts, upper and under tail-coverts, tarsi, and inside of tibiæ, considerably paler, inclining to light umber. Lanceolate feathers of occiput and hind neck with exposed portions light fulvous, the shafts black; dusky beneath the surface. Tail black, somewhat paler on basal half and with about three irregular, obsolete zigzag bands of pale brown (on two middle feathers ashy); no concealed white on breast. Fifth quill longest; third and fourth intermediate between fifth and sixth; second considerably shorter than sixth; first intermediate between eighth and ninth. Length 31.60; extent, 78.30. Wing, 24.50; tail, 13.40; culmen, 1.60; from base of cere, 2.15; tarsus, 3.85; middle toe, 2.40; hind claw (chord) 1.90.

Adult female (No. 12,006, Washington, D. C., March 7, 1869: C. Drexler). Almost exactly like the male. Black covering forehead, ear-coverts, cheeks, chin, throat, foreneck, and under parts generally (except the tarsi, inside and front of tibiæ, and lower tail-coverts which are light fulvous, the tarsi palest); "mane" more tawny than in the male. The lanceolate, pale, tawny feathers, which in the male cover only the occiput and neck, in the female extend forward over the top of the head, leaving the forehead only blackish. Upper parts and tail as in the male. Fourth quill longest; third slightly shorter than fifth; second intermediate between sixth and seventh; first intermediate between eighth and ninth. Wing, 26.00; tail, 14.25; culmen, 1.70; tarsus, 3.80; middle toe, 2.70; hind claw, 2.15; inner toe, 1.90; outer, 2.00; inner claw, 1.80; middle, 1.35; outer, 1.10.

Young male (No. 49,684, Camp Grant, near Tucson, Arizona, July 10, 1867: Dr. E. Palmer). Continuous deep sepia-black, with the purplish lustre; breast and scapulars with large concealed spots of pure white; lanceolate feathers of the "mane" dull brown, not conspicuously different from the throat; under surface of primaries showing much white basally, most extended on inner feathers. Upper and under tail-coverts more brownish than the rump, the basal portion white. Basal half, or more, of tail white (more ashy on outer feathers), distinctly defined against the broad, pure black, terminal zone; tarsi dull white, clouded with dilute brownish; feathers on inside of tibiæ tipped with white.

Young female—older? (No. 9,124, Washington, D. C. December, 1856: B. Cross). Similar, but black more brown; "mane" as in adult; tarsi dull whitish brown; tail-coverts deep umber-brown; tail as in young male, but terminal band narrower, the white occupying nearly the basal two thirds. Wing, 25.70; tail 14.75; culmen, 1.65; middle toe, 2.80; hind claw, 2.20.

The following is from Mr. Nelson's "List of the Birds of North-eastern Illinois" (*Bull. Essex Inst.* VIII., 1876, p. 120).

"Not very uncommon during winter. Arrives in November and departs early in spring. Formerly nested throughout the State. Dr. Hoy records the breeding of a pair of these birds in a tree near Racine in 1851. (*Wis. Agr. Rep.*, 1852.) In December, 1874, while hunting Prairie Chickens in a field a few miles south of Chicago, my friend, Mr. T. Morris, was suddenly attacked with great fury by a pair of these birds, they darting so close that had he been prepared he could easily have touched the first one with his gun. As it arose to renew the attack he fired a charge of number six shot, and brought it down, dead. The second one then darted at him, and so rapidly that he did not fire until it had turned and was soaring up, but so near that the charge passed through the primaries in a body, disabling but not injuring the bird, which was then captured alive. The cause of this attack was explained by the proximity of a carcass upon which these birds had been feeding. The claw of the dead eagle contained a large quantity of carrion, as I learned upon skinning it."

GENUS *HALIÆETUS* SAVIGNY.

Haliæetus SAVIGNY, Desc. de l' Egypte, 1809, 254. Type, *Falco albicilla* LINN.

GEN. CHAR. Form robust, and organization powerful, as in *Aquila*; size large. Bill very large, usually somewhat inflated, the chord of the arch of the culmen more than twice the length of the cere on top; commissure with a more or less distinct festoon and sinuation behind it. Nostril oval, obliquely vertical. Feet robust and strong, the tarsus less than one and a half times the middle toe; tarsus feathered in front and on the sides for about one half its length; front of the tarsus and top of the toes with an imperfectly continuous series of transverse scutellæ, entirely interrupted in the region of the digito-tarsal joint; the other portions covered with roundish, somewhat granular, scales, these larger on the posterior face. Claws large, strongly curved, and more obtuse, and less graduated in size, than in *Aquila*. No distinct web between outer and middle toes. Wing very large, the primaries well developed and strong; third to fifth quill longest; first longer than the ninth; outer five to six with inner webs deeply emarginated. Tail short and rounded, with twelve feathers. Feathers of the neck, all round, lanceolate.

North America possesses but two species of this very strongly characterized genus, and one of these claims a place in our fauna solely on account of its occurrence in Greenland. The other is the common Bald Eagle, the distribution of which includes the entire continent with the exception of the tropical portions.

Haliaeetus leucocephalus* (Linn.)*BALD EAGLE.**

Popular synonyms. White-headed Eagle; Gray Eagle; American Sea Eagle; Bird of Washington; Washington Eagle or Sea Eagle.

Falco leucocephalus LINN. S. N. ed. 12, i, 1766, 124.—WILS. Am. Orn. iv, 1811, 89, pl. 26.—AUD. B. Am. 1831, 300, pl. 31; Orn. Biog. i, 1831, 160.

Haliaeetus leucocephalus STEPH. 1826.—NUTT. Man. i, 1832, 72.—AUD. B. N. Am. i, 1840, pl. 14; Synop. 1839, 10.—CASS. in Baird's B. N. Am. 1858, 43.—BAIRD, Cat. N. Am. B. 1859, No. 43.—COUES, Key, 1872, 219; Check List, 1873, No. 362; 2d ed. 1882, No. 534; B. N. W. 1874, 369.—B. B. & R. Hist. N. Am. B. iii, 1874, 326.—RIDGW. Nom. N. Am. B. 1881, No. 451.

Falco ossifragus WILS. Am. Orn. vii, 1813, pl. 55, fig. 2 (= young).

Falco washingtonii AUD. Mag. Nat. Hist. ser. 1, i, 1823, 115; Orn. Biog. i, 1831, 58; B. Am. 1831, pl. 11; ed. 1840, i, 53, pl. 13.

Falco washingtonianus NUTT. Man. i, 1832, 67.

Haliaeetus washingtoni JARD. 1832.—AUD. Synop. 1839, 10; B. Am. i, 1839, 53, pl. 13.

HAB. Entire continent of North America, south to Mexico; northwest through the Aleutian chain to Bering Island, Kamtschatka; breeding throughout.

SP. CHAR. *Adult.* Entire head and neck, upper and lower tail-coverts, and tail, immaculate pure white. Rest of the plumage brownish black, the feathers fading toward the edges, these paler borders being most conspicuous on the upper surface. Primaries uniform deep black. Bill, cere, superciliary shield, and feet, deep chrome-yellow; iris Naples yellow. *Male* (No. 12,017, Philadelphia: C. Drexler): Wing, 22.00; tail, 10.50; culmen, 1.90; top of cere, .80; depth of bill, 1.30; tarsus, 3.00; middle toe, 2.60; outer, 2.00; inner, 1.50; posterior, 1.30. Wing formula, 3=4-5, 2-6: 1=7. *Female* (No. 11,956, Philadelphia: C. Drexler): Wing, 25.00; tail, 12.75; culmen, 2.20; top of cere, .80; tarsus, 3.10; middle toe, 2.85. Wing formula, 3=4, 5-2-6-7-1, 8.

Young, second year (?) (No. 58,977, Mount Carmel, Wabash county, Illinois, December, 1869; D. Ridgway). Head and neck brownish black, white beneath the surface, the penicillate ones of the neck tipped with pale brown. Prevailing color of other portions blackish brown inclining to umber on the dorsal region, wing-coverts, and lower parts; all the feathers white at their roots, this much exposed on the lower parts, where the brown forms tear-shaped terminal spots; axillars and lining of the wing white, each feather of the latter region with a median lanceolate stripe of blackish brown. Primaries and tail brownish black; inner webs of secondaries and tail-feathers spattered longitudinally with creamy white. Bill and cere black; iris brown; feet yellow. Wing, 25.50; tail, 15.00; culmen, 2.10; tarsus, 3.10; middle toe, 2.60.

Young, first year (No. 41,593, eastern United States?). Whole plumage, nearly uniformly black, this very continuous above; beneath, the basal white is much exposed, producing a somewhat spotted appearance. Primaries and tail deep black, the inner webs of the latter sprinkled with cream color.

Young in down (Washington, D. C.) Downy covering uniform deep sooty gray; the sprouting feathers on wings, etc., all brownish black.

The following measurements represent the average of the sexed specimens which have been examined. It will be noticed that the young of either sex exceed the adults in the length of the wing and tail. Altogether more than sixty specimens have been inspected.

Sex.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.	Specimens.
Adult males...	20.00-23.00	11.00-13.00	1.85-2.00	2.65-3.40	2.35-2.65	10
Young males..	23.50-25.00	12.00-15.25	1.95-2.20	3.20-3.30	2.70-2.90	5
Adult females.	23.50-25.00	12.50-13.50	1.90-2.20	3.40-3.60	2.55-2.80	7
Young females	25.50-26.00	15.00-15.50	2.10-2.20	3.25-3.70	2.55-3.10	2

A very fine adult female obtained at Mount Carmel, Illinois, January 1, 1870, measured 34.50 inches in length and 85.00 inches (7 feet 1 inch) in spread of wings; weight 12 pounds. Bill and cere uniform wax-yellow, inclining to chrome; rictus and eyebrow pale chrome-yellow; iris clear light Naples yellow; tarsi and toes deep chrome-yellow, claws black.

A very large specimen in the collection of the Audubon Club, of Chicago, measured 3 feet 6 $\frac{3}{4}$ inches in total length and 8 feet 1 $\frac{1}{2}$ inches in extent.

Along all the larger water-courses in our State the Bald Eagle is a more or less common bird, and may be met with at all times of the year.

"The White-headed Eagle," writes Dr. Brewer,* "appears to be equally well adapted by nature for the endurance of heat or cold, and is apparently indifferent to either. Its residence is influenced only by its abundance of food, especially that of fish; and it seems to matter very little whether that plenty is procurable within the Arctic circle or on the coast and rivers of Florida and Texas. In places like the Falls of Niagara, where the stream is ever liable to contribute the remains of animals destroyed by the descent of the torrent, this eagle is especially abundant. Unscrupulous, greedy, voracious, not select in its choice of food, and capable of providing for itself when necessity compels, we find this not altogether suitable emblem of our country now enacting the tyrant and robber and plundering the Fishhawk of the fruits of its industry, now sharing with the Raven and the Vulture the dead salmon of the Columbia, and in other places diving for and catching its own fish. The impetuosity and skill with which it pursues, overtakes, and robs the Fishhawk, bearing off a fish it has just taken, must be witnessed to be appreciated; and the swiftness with which the Eagle can dart down upon and seize the booty, which the Hawk has been compelled to let fall, before it reaches the water, is not

* *Hist. N. Am. B.* iii, p. 331.

the least wonderful feature of this striking performance. On the banks of the Columbia, where there are no Fishhawks to depend upon, this bird finds an easy subsistence on the vast numbers of dead and dying salmon which abound; and in Florida Mr. Allen has observed it dive and catch its own fish. This is also confirmed by the statements of other naturalists. Wilson also accuses this Eagle of destroying great numbers of young pigs in the Southern States, young lambs, and even sickly sheep; and in one instance it attempted to carry off a child, which was only saved by its dress giving way."

SUBORDER **SARCORHAMPHI**.—THE AMERICAN VULTURES.FAMILY **CATHARTIDÆ**.—THE AMERICAN VULTURES.

(*Cathartidæ* GRAY, 1842. —HUXLEY, P. Z. S. 1867, p. 463. *Cathartinæ* LAFR. 1839. *Sarcorhamphidæ* GRAY, 1848. *Gryphinæ* REICH. 1850.)

The Suborder *Sarcorhamphi* (briefly characterized on page 45) is exactly equivalent to the Family *Cathartidæ*, the essential characters of which are as follows:

CHAR. Whole head, and sometimes the neck, naked; eyes prominent, and not shaded by a superciliary shield. Cere much elongated, much depressed anteriorly below the very arched culmen; nostrils longitudinal, horizontal, the two confluent or perforate. Middle toe very long, and the hind one much abbreviated. A web between the base of the inner and middle toes.

The so-called family *Vulturidæ*,* as long recognized, included all the naked-headed carrion-feeding *Raptores* of both the Old World and the New. The later researches of science, however, have shown the necessity of separating the Vultures of the latter continent from those of the former, and ranking them as a distinct family, while at the same time the Old World Vultures are found to be merely modified *Falconidæ*, the resemblance between the *Cathartidæ* and the vulturine *Falconidæ* being merely a superficial one of analogy, and not one of affinity. Scavengers of the countries they respectively inhabit, they perform the same office in nature; therefore, for adaptation to a similar mode of life their external characters are correspondingly modified.

The *Cathartidæ* differ from the *Vulturinæ*† as to their external structure in the following particulars, the osteological structure being entirely different in the two groups; the latter resembling the *Falconidæ* in all the characters which separate the latter family from the *Cathartidæ*.

* Established by Vigors in 1825.

† From the *Vulturinæ* are excluded the genera *Gypætos* and *Neophron*, each of which probably constitutes a subfamily by itself.

Cathartidæ. Nostrils horizontal, perforate; a well-developed web between the inner and middle toes, at the base.

Vulturinæ. Nostrils vertical, not perforate; no trace of web between inner and middle toes.

In habits, as before stated, the *Cathartidæ* resembles the vulturine *Falconidæ* of the Old World. "They lack the strength and spirit of typical *Raptores*, and rarely attack animals capable of offering resistance; they are voracious and indiscriminate gormandizers of carrion and animal refuse of all sorts,—efficient and almost indispensable scavengers in the warm countries where they abound. They are uncleanly in their mode of feeding; the nature of their food renders them ill-scented, and when disturbed they eject the fetid contents of the crop. Although not truly gregarious, they assemble in multitudes where food is plenty, and some species breed in communities. When gorged, they appear heavy and indisposed to exertion, usually passing the period of digestion motionless, in a listless attitude, with their wings half spread. But they spend most of the time on the wing, circling high in the air; their flight is easy and graceful in the extreme, and capable of being indefinitely protracted. On the ground, they habitually walk instead of progressing by leaps. Possessing no vocal apparatus, the Vultures are almost mute, emitting only a weak hissing sound." (COUES.)

The *Cathartidæ* all belong to the tropical and warm-temperate portions of the continent, only one species (*Cathartes aura*) extending its range as far as the border of the colder regions. The famous Condor (*Sarcorhamphus gryphus*) of the Andes and the equally large Californian species (*Pseudogryphus californianus*) are amongst the largest birds of flight in the world, being exceeded in size by none, and rivaled by but one or two of the Vultures of the eastern hemisphere.

The two genera having representatives in eastern North America (both of them found in Illinois) may be readily distinguished by the following characters:

1. **Cathartes.** Nostril occupying the whole of the nasal cavity, its anterior end broadly rounded; cere decidedly arched on top, its upper and lower outlines divergent basally; mandible much less deep than the maxilla; skin of neck without corrugations, but that of the head usually with irregular papillæ in front of eye and on crown (these wanting in the young). Wing long, the primaries reaching to or beyond end of the rather long, much rounded, tail.
2. **Catharista.** Nostril occupying only the posterior half of the nasal fossæ, its anterior end contracted and acute; cere depressed and not perceptibly arched, much broader than deep, its upper and lower outlines parallel; maxilla and mandible about equal in depth. Skin of neck transversely corrugated or wrinkled. Wing short, the primaries scarcely reaching to the middle of the short, truncate or slightly emarginated tail.

GENUS CATHARTES ILLIGER.

Cathartes ILLIG. Prodrömus, 1811, 236. Type (by elimination), *Vultur aura* LINN.

Rhinogryphus RIDGW. in Hist. N. Am. B. iii, 1874, 337, 343. Same type.

GEN. CHAR. Size medium (about equal to *Neophron*), the wings and tail well developed, the remiges very long and large. Head and upper portion of the neck naked; the skin smooth, or merely wrinkled; a semicircular patch of antrorse bristles before the eye. Nostril very large, with both ends broadly rounded, occupying the whole of the nasal orifice. Cere contracted anteriorly, and as deep as broad; lower mandible not so deep as the upper. Plumage beginning gradually on the neck, with broad, rounded, normal feathers. Ends of primaries reaching beyond the end of the tail; third or fourth quill longest; outer five with inner webs appreciably sinuated. Tail much rounded; middle toe slightly longer than the tarsus. Sexes alike.

Cathartes aura (Linn.)

TURKEY BUZZARD.

Popular synonyms. Turkey Vulture; Buzzard.

Vultur aura LINN. S. N. ed. 12, i, 1766, 122.—WILS. Am. Orn. ix, 1814, 96, pl. 75, fig. 1.

Cathartes aura ILLIG. 1811.—NUTT. Man. i, 1832, 43.—AUD. Orn. Biog. ii, 1835, 296; v, 1839,

339, pl. 151; Synop. 1839, 3; B. Am. i, 1840, 15 pl. 2.—CASS. in Baird's B. N. Am. 1858, 4,

—BAIRD, Cat. N. Am. B. 1859, No. 1.—COUES, Key, 1872, 222; Check List, 1874, No. 365;

2d ed. 1882, No. 537; B. N. W. 1874, 379.—RIDGW. Nom. N. Am. B. 1881, No. 454.

Rhinogryphus aura RIDGW. in Hist. N. Am. B. iii, 1874, 344.

HAB. Whole of tropical and temperate America, including West Indies; north to southern New England, Ontario and the Saskatchewan, south to Chili, Patagonia, and Falkland Islands. Resident south of 40°.

SP. CHAR. Length, about 27.00-30.00; extent of wings, about 6 feet; weight, 4-5 pounds. Wing, 20.00-23.00; tail, 11.00-12.00; culmen, about 1.00; tarsus, 2.25-2.30; middle toe, 2.50; outer, 1.55; inner, 1.25; posterior, .80. Iris brown; tarsi and toes dirty whitish, tinged with yellow or flesh color.

Adult. Bill chalk-white; naked skin of the head and neck livid crimson, approaching dilute carmine on the cere, and sometimes with whitish papillæ on the crown and before the eye. General plumage dull black, this deepest and uniform on the lower parts; upper parts with a violet lustre, changing to greenish posteriorly, all the feathers of the dorsal region and the wing-coverts passing into light brownish on their borders. Primaries and tail-feathers dull black, their shafts clear pale brown; sometimes nearly white. *Male* (No. 12,015, Maryland: M. F. Force): Wing, 22.00; tail, 12.00; culmen, .95; tarsus, 2.30; middle toe, 2.50; outer, 1.55; inner, 1.25; posterior, .80. *Female* (No. 49, 681, Camp Grant, Arizona: Dr. E. Palmer): Wing, 20.00; tail, 11.50.

Young. Bill, and naked skin of the head and neck, livid blackish, the occiput and nape with more or less of whitish down; plumage more uniformly blackish, the brownish borders above less distinct; the reflections of the plumage rather green than violaceous.

The Turkey Buzzard is a very abundant bird in the southern half of the State, and is a permanent resident at least as far north as Mt. Carmel, though it is only during clear bright days that specimens are seen in midwinter. In the extreme northern portion

of the State, however, it appears to be more or less rare. Mr. Nelson, in his list of the birds of Cook county (*Bull. Essex Inst.* VIII., 1876, p. 120) says:

"A very irregular and rare visitant in this vicinity. Sixty miles south it is a common summer resident, yet I know of but very few instances of its occurrence here. A specimen was captured, after a snow storm, late in autumn, several years since at Waukegan, by Mr. Charles Douglas."

In the vicinity of Mt. Carmel it is very abundant, many pairs breeding in hollow trees, mostly old sycamores, in the river bottoms, especially in the vicinity of the cypress swamps.

"The flight of the Turkey Buzzard," says Dr. Brewer,* "is graceful, dignified and easy. It sails with a steady, even motion, with wings just above the horizontal position, with their tips slightly raised. They rise from the ground with a single bound, give a few flaps to their wings, and then proceed with their peculiar, soaring flight. They rise very high in the air, moving round in large circles. They are of gregarious habits, and usually associate in companies of from ten to a much larger number. They feed upon all kinds of animal food, and are accused by Audubon of sucking eggs and devouring the young of Herons and other birds. Yet in Trinidad they were observed by Mr. E. C. Taylor associating with the poultry, apparently upon the most amicable terms, and, although surrounded with chickens of all sizes, they were never known to molest them. Mr. Audubon also states that they devour birds of their own species when dead. They are said to walk well on the ground and on the roofs of houses, and associate and even roost in company with the Black Vulture."

GENUS CATHARISTA VIEILLOT.

Catharista VIEILL. Analyse, 1816, 21. Type (by elimination)=*Vultur urubu* VIEILL.
V. atratus BARTS.

GEN. CHAR. Size of *Cathartes*, but more robust, with shorter wings, and very different flight. Wings with the remiges abbreviated, the primaries scarcely reaching to the middle of the tail. Tail even, or faintly emarginated. Head and upper portion of the neck naked, the feathers extending farther up behind than in front; naked skin of the side of the neck transversely corrugated; no bristles before the eye. Nostril narrow, occupying only about the posterior half of the nasal orifice, its anterior end contracted and acute. Cere not contracted anteriorly, but the upper and lower outline parallel; much depressed, or broader than deep. Plumage beginning gradually with normal, or broad and rounded, feathers. Fourth or fifth quill longest; outer five with inner webs sinuated. Tarsus longer than middle toe.

* *Hist. N. Am. B.* iii, pp. 347-349.

This well-marked genus is composed of a single species, which is confined to the tropical and warm-temperate portions of America. The differences from the other Vultures, which this bird exhibits in its habits and especially in its flight, are very striking, and furnish additional characters distinctive of the genus.

Catharista atrata (Bartr.)

BLACK VULTURE.

Popular synonym. Carrion Crow.

Vultur atratus BARTR. TRAV. 1792, 289.

Cathartes atratus LESS. 1823.—AUD. Synop. 1839, 3; B. Am. i, 1840, 17, pl. 3.—CASS. in Baird's B. N. Am. 1858, 5.—BAIRD, Cat. N. Am. B. 1859, No. 3.—COUES, Key, 1872, 222; Check List, 1874, No. 366; B. N. W. 1874, 383.

Catharista atrata GRAY, 1869.—B. B. & R. Hist. N. Am. B. iii, 1874, 351.—RIDGW. Nom. N. Am. B. 1881, No. 455.—COUES, 2d Check List, 1882, No. 533.

Cathartes iota ("MOL.") BP. 1823. (*nec* Mol.).—NUTT. Man. i, 1832, 46.—AUD. Orn. Biog. iii, 1835, 35; v, 1839, 345, pl. 106.

HAB. Whole of tropical, subtropical, and warm-temperate America, including West Indies; north, on Atlantic coast, regularly to North Carolina, casually to New Brunswick; in the interior to southern Ohio, Indiana, and Illinois, and west of the Mississippi to northern Dakota.

SP. CHAR. Form heavy; the wings and tail short, the latter square; the remiges and rectrices very hard and stiff. Bill strong, the mandibles broader than deep, and of about equal depth, the terminal hook well developed; upper and lower outlines of the cere parallel, and nearly straight. Nostril narrow, its anterior end contracted and pointed. Wing, 17.00-17.50; tail, 7.50-8.50; culmen, .90-.95; tarsus, 3.00; middle toe, 2.90; outer, 1.90; inner, 1.50; posterior, .75.

Adult. Bill blackish the point horny white; naked skin of the head and upper part of the neck blackish. Entire plumage continuous, perfectly uniform dull black; primaries becoming grayish basally (more hoary whitish on their under surface), their shafts pure white for their whole length.

For some unexplained reason, the Black Vulture is an uncommon bird in most parts of Illinois. In fact, it does not seem to be numerous anywhere, even in the extreme southern portion of the State. Near Mt. Carmel the writer has met with it only in the cypress swamp, where, during spring and summer, it was several times seen, but always singly. In the same locality the Turkey Buzzards could be counted by hundreds. It seems, however, to be a very local species, and the country about Mt. Carmel may be in some way unsuited to its habits. It is so conspicuously different in appearance and manner from the Turkey Buzzard that there is no chance of confounding the two; therefore, the species cannot have been overlooked.

"Both in their mode of flight and in their movements upon the ground this species differs materially from the Turkey Buzzard. The latter walks steadily while on the ground, and when it mounts does so by a single upward spring. The Black Vulture is ill at ease on the ground, moves awkwardly, and when it essays to fly upward takes several leaps in a shuffling side-long manner before it can rise. Their flight is more labored, and is continued by flapping several times, alternated with sailing a limited distance. Their wings are held at right angles, and their feet protrude beyond their tail-feathers. In all these respects the differences between the two birds are very noticeable, and plainly mark the species." (BREWER.)

ORDER COLUMBÆ.—THE PIGEONS OR DOVES.

CHAR. Basal part of the bill tumid and covered with a soft skin, in which are situated the narrow, longitudinal nostrils, overhung by a valve-like scale or covering; terminal portion of the bill hard; the culmen more or less strongly arched. Hind toe usually incumbent, and front toes generally cleft to the extreme base. Plumage peculiarly dense, the feathers without aftershafts, and very easily detached from the skin. Primaries ten; secondaries, eleven to fifteen; rectrices, twelve to fourteen.

The number of families composing this order is at present somewhat uncertain. Whatever the number, however, America possesses but one, the *Columbidæ*, or true Pigeons, whose characters are as follows:

FAMILY COLUMBIDÆ.—THE PIGEONS.

CHAR. The basal portion of the bill covered by a soft skin, in which are situated the nostrils, overhung by an incumbent fleshy valve, the apical portion hard and convex. The hind toe on the same level with the rest; the anterior toes without membrane at the base. Tarsi more or less naked; covered laterally and behind with hexagonal scales.

"The bill of the *Columbidæ* is always shorter than the head, thinnest in the middle; the basal half covered by a soft skin; the apical portion of both jaws hard; the upper one very convex, blunt, and broad at the tip, where it is also somewhat decurved. There is a long nasal groove, the posterior portion occupied by a cartilaginous scale, covered by a soft cere-like skin. The nostrils constitute an elongated slit in the lower border of the scale. The culmen is always depressed and convex. The bill is never notched in the true Doves, though *Didunculus* shows well-defined serrations. The tongue is small, soft, and somewhat fleshy.

"The wing has ten primaries, and eleven or twelve, rarely fifteen, secondaries; the latter broad, truncate, and of nearly equal length. The tail is rounded or cuneate, never forked.

"The tarsus is usually short, rarely longer than the middle toe, scutellate anteriorly, [except in *Sturnanas*] and with hexagonal plates laterally and behind; sometimes naked. An inter-digital membrane is either wanting entirely, or else is very slightly indicated between the middle and outer toes." (*Hist. N. Am. B.*)

The two principal groups of American *Columbidæ*, which for convenience may be termed subfamilies, may be briefly distinguished as follows:

Columbinæ. Tarsus shorter than the lateral toes, feathered above.

Zenaidinæ. Tarsus longer than the lateral toes, entirely bare of feathers.

The North American genera (but two of which come within the field of this work) are characterized as below, the extralimital genera being in brackets:

SUBFAMILY *Columbinæ*.

CHAR. Tarsi stout, short, with transverse scutellæ anteriorly; feathered for the basal third above, but not at all behind. Toes lengthened, the lateral decidedly longer than the tarsus. Wings lengthened and pointed. Size large. Tail-feathers twelve.

1. *Columba*. Head large; tail short, broad, and rounded.]
2. *Ectopistes*. Head very small; tail much lengthened, cuneate.

SUBFAMILY *Zenaidinæ*.

CHAR. Tarsi stout, lengthened; always longer than the lateral toes, and entirely without feathers; the tibial joint usually denuded. Tarsus sometimes with hexagonal scales anteriorly. Tail-feathers sometimes fourteen.

- a. *Zenaidæ*. Size moderate. Wings lengthened, acute, the primaries much longer than the secondaries. Tarsus scutellate anteriorly. A blackish spot beneath the auriculars (except in *Engyptila*); tail-feathers tipped with white, and with a blackish subterminal bar. Sides of the neck with a metallic gloss.
- [3. *Engyptila*. *Outer primary abruptly attenuated terminally*. Color plain grayish brown above, lighter and (usually) more vinaceous below; under side of wing mainly rufous.]
- [4. *Melopelia*. Bill lengthened, much depressed. A white patch on the wing; no black spots on the scapulars; plumage ashy, lighter beneath. Tail of twelve feathers, rounded.]

- [5. *Zenaida*. Bill smaller, more compressed. No white patch on the wing; scapulars with black spots. Above olivaceous, beneath vinaceous. Tail usually of twelve feathers, rounded.]
- 6. *Zenaidura*. Similar to *Zenaida*, but tail of fourteen feathers, much more lengthened, and graduated.
- b. *Chamæpelieæ*. Size very small. Wings rounded, the primaries scarcely longer than the tertials. Tarsus scutellate anteriorly. No blackish spot beneath the auriculars; no metallic gloss on sides of the neck.
- [7. *Scardafella*. Tail of twelve feathers, lengthened (much longer than wings), doubly rounded, the lateral feathers much shorter; the three outer pairs with white terminally.]
- [8. *Columbigallina*. Tail of twelve feathers, short (much less than wings), simply rounded, the lateral feathers only slightly shorter; outer feathers without white terminally, or with only a slight edging. Wing-coverts with oblique black spots, and body without transverse blackish bars.]
- c. *Geotrygoneæ*. Size moderate (generally a little larger than *Zenaida*); form robust, or quail-like. Legs very stout; tarsi decidedly longer than the middle toe, variously scaled anteriorly. Wings short, very broad, and much rounded, but the primaries decidedly longer than the secondaries.
- [9. *Starnænas*. Legs very stout; tarsi covered anteriorly with hexagonal scales; crown blue; a black gular patch, bordered below by white.]
- [10. *Geotrygon*. Legs moderate; tarsi covered anteriorly with transverse scutellæ; crown never blue, and throat without black patch or white markings.]

GENUS ECTOPISTES SWAINSON.

Ectopistes SWAINSON, Zool. Jour. iii, 1827, 362. Type, *Columba migratoria* LINN.

"GEN. CHAR. Head very small. Bill short, black; culmen one third the rest of the head; feathers of the chin running very far forward; gonyes very short. Tarsi very short, half covered anteriorly by feathers. Inner lateral claw much larger than outer, reaching to the base of the middle one. Tail very long and excessively cuneate; about as long as the wings. First primary longest. Black spots on scapulars; a black and a rufous spot on inner webs of tail-feathers.

"This genus is readily distinguished from the other *Columbinæ*, by the excessively lengthened and acute middle feathers. It formerly included the *Columba carolinensis*, but this, with more propriety, has been erected into a different genus (*Zenaidura*), and will be found in the next section." (*Hist. N. Am. B.*)

The *E. migratorius*, or common Wild Pigeon or Passenger Pigeon of eastern North America, is slaty blue above, the wings and scapulars more brownish and spotted with black; the inner webs of the tail-feathers have each a rufous and a black spot. The male has the whole head bluish plumbeous, the fore-neck and jugulum rich cinnamon, passing into vinaceous on the breast, this gradually

becoming paler posteriorly; the sides of the neck richly glossed with metallic solferino-purple. The female has the head, foreneck, and jugulum brownish ashy or drab, gradually lightening posteriorly.

Ectopistes migratorius (Linn.)

PASSENGER PIGEON.

Popular synonym. Wild Pigeon.

Columba migratoria LINN. S. N. ed. 12, i, 1766, 285.—WILS. Am. Orn. i, 1808, 102, pl. 44, fig. 1.—NUTT. Man. i, 1832, 629.—AUD. Orn. Biog. i, 1831, 319; v. 1839, 561, pl. 62.

Ectopistes migratoria SW. Zool. Jour. iii, 1827, 335.—AUD. Synop. 1839, 174; B. Am. v, 1842, 26, pl. 285.—BAIRD, B. N. Am. 1858, 600; Cat. N. Am. B. 1859, No. 448.—COUES, Key, 1872, 225; Check List, 1874, No. 370; 2d ed. 1882, No. 543; B. N. W. 1874, 387.—B. B. & R. Hist. N. Am. B. iii, 1874, 808, pl. 57, fig. 4.—RIDGW. Nom. N. Am. B. 1881, No. 459.

HAB. Whole of temperate eastern North America, west to the Rocky Mountains; no extralimital records, except Cuba and England (accidental). Straggled to Western Province of United States (Nevada, eastern Oregon, etc.).

SP. CHAR. *Adult male.* Head and hind-neck bluish plumbeous, lighter on chin; rump bluish plumbeous; back, scapulars, and tertials grayish brown or drab; wings more plumbeous, the innermost coverts, with tertials and outer scapulars, spotted with black. Tail shading from dusky on middle rectrices through gradually lighter slate and ashy to white on lateral feathers; inner web of each feather (except middle pair) with a transverse spot of black, preceded by another of rufous. Jugulum and breast rich vinaceous rufous, gradually changing to soft pinkish vinaceous on the sides. Crissum and middle of abdomen white. Hind part and sides of neck with brilliant reflections of metallic solferino-purple, changing to violet, green, golden, etc. Bill black, the cere glaucous whitish, the rictus crimson; iris bright red; legs and feet lake-red. *Adult female.* Head brownish gray, paler toward throat; jugulum and breast brownish gray or drab, changing to paler brownish gray on sides; metallic reflections on neck less brilliant. *Young.* Somewhat like the adult female, but the wing-coverts, scapulars, and feathers of the head, neck, and jugulum tipped with whitish, causing a mottled appearance; rusty margins of primaries more distinct, widely bordering the tips of the quills. Bill black, the rictus pinkish; iris brown, with a narrow outer ring of carmine; feet pale livid salmon-pink, the scutellæ more brownish; claws blackish.

Wing, 8.40-8.50; tail, 8.20-8.60; culmen, .60-.65; tarsus, 1.15; middle toe, 1.15.

So much has been written about the extraordinary abundance, in past years, of the Wild Pigeon, that the subject may seem threadbare. Still, it is so full of interest, that we quote the following from *History of North American Birds* (Vol. III., pp. 371-374):

"Several writers, who have witnessed the occasionally enormous flights of these Pigeons, have given very full and graphic accounts of their immense numbers that seem hardly credible to those who have not seen them. Mr. Audubon relates that in 1813, on his way from Henderson to Louisville, in crossing the barrens near Hardensburg, he observed these birds flying to the southwest in greater

numbers than he had ever known before. He attempted to count the different flocks as they successively passed, but after counting one hundred and sixty-three in twenty-one minutes, he gave it up as impracticable. As he journeyed on, their numbers seemed to increase. The air seemed filled with Pigeons, and the light of noon-day to be obscured as by an eclipse. Not a single bird alighted, as the woods were destitute of mast, and all flew so high that he failed to reach any with a rifle. He speaks of their aërial evolutions as beautiful in the extreme, especially when a Hawk pressed upon the rear of a flock. All at once, like a torrent, and with a noise like that of thunder, they rushed together in a compact mass, and darted forward in undulating lines, descending and sweeping near the earth with marvellous velocity, then mounting almost perpendicularly in a vast column, wheeling and twisting so that their continued lines seemed to resemble the coils of a gigantic serpent. During the whole of his journey from Hardensburg to Louisville, fifty-five miles, they continued to pass in undiminished numbers, and also did so during the three following days. At times they flew so low that multitudes were destroyed, and for many days the entire population seemed to eat nothing else but Pigeons."

GENUS *ZENAIIDURA* BONAPARTE.

Zenaidura BONAP. Consp. Avium, ii, 1854, 84. Type, *Columba carolinensis* LINN.

"GEN. CHAR. Bill weak, black; culmen from frontal feathers about one third the head above. Tarsus not as long as middle toe and claw, but considerably longer than the lateral ones; covered anteriorly by a single series of scutellæ. Inner lateral claw considerably longer than outer, and reaching to the base of middle. Wings pointed; second quill longest; first and third nearly equal. Tail very long, equal to the wings; excessively graduated and cuneate, of fourteen feathers." (*Hist. N. Am. B.*)

The fourteen tail-feathers render this genus very conspicuous among the North American doves. It was formerly placed with the Passenger Pigeon in *Ectopistes*, but has nothing in common with it but the lengthened tail, as it belongs to a different subfamily. At present three species are known, one (*Z. graysoni* LAWR.) being peculiar to Socorro Island, well off the coast of western Mexico, the other (*Z. yucatanensis* LAWR.) from the vicinity of Merida, in northern Yucatan. The latter is possibly a hybrid between *Z. carolinensis* and *Zenaida amabilis*, being exactly intermediate in form and coloration, while the type specimen still remains unique. (*Cf. Hist. N. Am. B.* Vol. III., p. 382, and "The Auk," Vol. I., Jan. 1884, p. 96.)

Zenaidura macroura (Linn.)

MOURNING DOVE.

Popular synonyms. Turtle Dove; American Turtle Dove; Common Dove; Carolina Dove.

Columba macroura LINN. S. N. ed. 10, i, 1758, 164 (part).

Zenaidura macroura RIDGW. Proc. U. S. Nat. Mus. viii, 1885, 355.

Columba carolinensis LINN. S. N. ed. 12, i, 1766, 286.—WILS. Am. Orn. v, 1812, 91, pl. 43, fig. 1.—NUTT. Man. i, 1832, 626.—AUD. Orn. Biog. i, 1831, 91; v, 1839, 555, pl. 17.

Ectopistes carolinensis RICH. 1837.—AUD. Synop. 1839, 195; B. Am. v, 1842, 36, pl. 286.

Zenaidura carolinensis BP. 1854.—BAIRD, B. N. Am. 1858, 604; Cat. N. Am. B. 1859, No. 451.—COUES, Key, 1872, 226; Check List, 1874, No. 371; 2d ed. 1882, No. 544; B. N. W. 1874, 389 (*Zenaidura*).—B. B. & R. Hist. N. Am. B. iii, 1874, 383, pl. 53, fig. 2.—RIDGW. Nom. N. Am. B. 1881, No. 460.

HAB. The whole of temperate North America to a little north of the United States boundary (Ontario, etc.); south through Mexico and Central America to the Isthmus of Panama, Cuba, Jamaica, and some other West Indian islands.

SP. CHAR. *Adult male.* Above grayish brown, the scapulars with roundish or oblong spots of black; sides, and under surface of wings light grayish blue. Tail, except middle pair, shading from white on outer web of lateral feathers to dark plumbeous on next to middle pair, which are grayish brown; each rectrix crossed, just beyond the middle, by a broad bar of black, after which the gray is considerably lighter than that anterior to the spot. Occiput and nape light pearl-gray, with a glaucous tinge; rest of head pale purplish cinnamon, inclining to whitish on the chin. Breast delicate pinkish vinaceous changing to fine creamy buff on abdomen; crissum pale creamy buff. Sides of neck richly glossed with metallic reddish purple, and just beneath the auriculars a spot of glossy blue-black. Bill black, the cere bluish gray, and rictus lake-red; naked orbital skin delicate pale blue, tinted with greenish; iris deep brown; feet lake-red claws black. Total length (fresh) 12.60–13.00; extent, 17.50–18.25; wing (skin), 5.80–6.10; tail, 6.00–6.50. *Adult female.* Similar to the male, but colors duller. Head light drab, whitish on chin, and scarcely, if at all, bluish on occiput and nape; breast light drab, changing gradually to creamy buff on the abdomen; metallic gloss on sides of neck fainter, and black spot beneath ears smaller and without blue gloss. Size a little smaller. *Young.* Somewhat like the adult female, but much duller, more brownish, and with feathers of jugulum, neck, and upper parts margined or tipped with paler.

The Mourning Dove is found throughout the State and is a permanent resident in most places, though less numerous and of uncertain occurrence in winter. In the spring of 1833 all the specimens shot at Wheatland, Indiana, had the ends of the toes frozen off, showing that they had braved the almost unprecedented cold of the preceding winter. The species have even been known to winter as far north as Canada; Mr. John J. Morley, of Windsor, Ontario, informing Professor Baird (*in epist.*) that he had seen considerable numbers near that place on the 6th of December, 1878, and that he had on other occasions seen it “in various places, from three to twelve at a time.”

In the northeastern portion of Illinois, it is according to Mr. Nelson (*Bull. Essex Inst.* VIII., December, 1876, p. 121), "a very common summer resident. The majority arrive the last of March and first of April, and depart by the middle of October. Straggling parties are occasionally observed during the winter. In many places this species becomes semi-domesticated, breeding in the trees in the yard and showing but little fear when approached."

ERRATA.

Page 5, line 2 from bottom, after *that* insert *it*.

Page 30, line 1, for *but* now read *not* now.

Page 70, line 17, for *townsendi* read *townsendii*; line 5 from bottom, before .85 read 3.

Page 88, for *Troglodytidæ* read *Troglodytinæ*.

Page 99, lines 9 and 14 from bottom, for *hyemalis* read *hiemalis*.

Page 121, line 12 from bottom, for *swainisonii* read *swainsoni*.

Page 123, for *Helmitheros* read *Helmitherus*.

Page 133, line 20 from bottom, for *mariima* read *maritima*.

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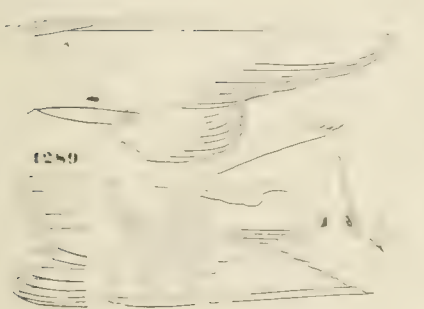
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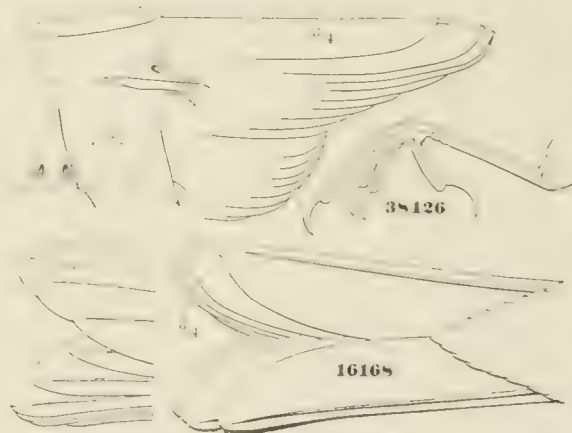
Turdus mustelinus.



Merula migratoria.



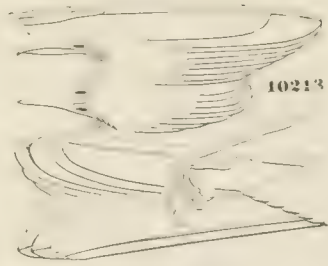
Sialia sialis.



Myiarchus cinerascens.



Poliophtila cerulea.



Regulus satrapa.



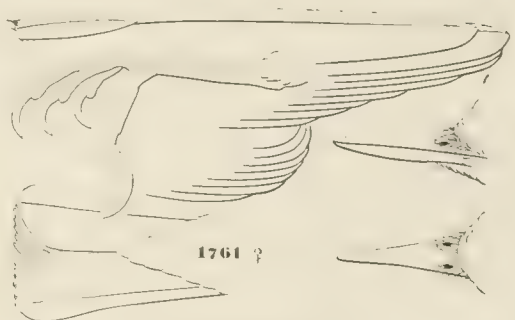
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Parus lucidor.

12851

Parus atricapillus.

1761

Sitta carolinensis.

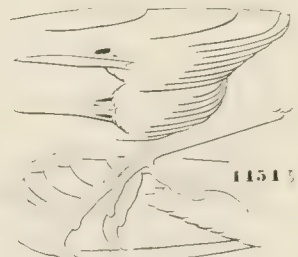
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Certhia familiaris americana.

7113

Thryothorus ludovicianus.

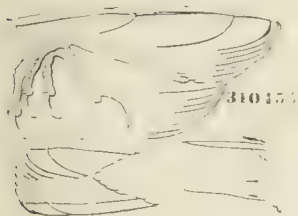
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Thryothorus bewickii.

1151

Troglodytes aëdon.

1000



Troglodytes hiemalis.



Cistothorus stellaris.



Cistothorus palustris.



Harpophychus rufus.



Galeoscoptes carolinensis.



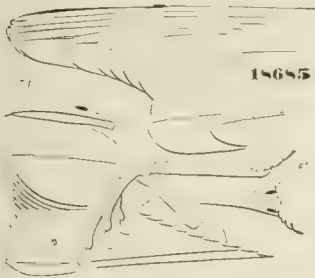
Mimus polyglottos.



Anthus pensilvanicus.



Anthus spragueii.



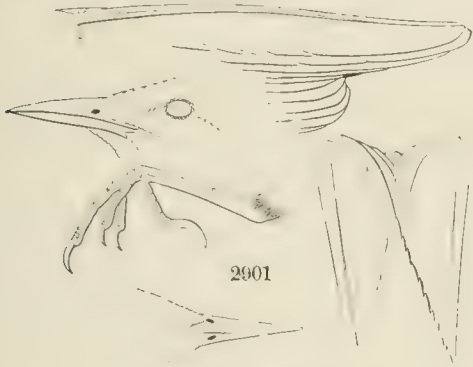
Mniotilta varia.



Protonotaria citrea.



Compsothlypis americana.



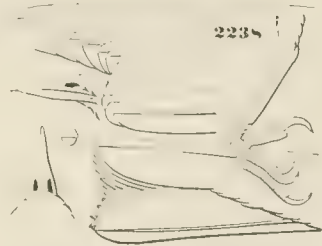
Helinaia swainsoni.



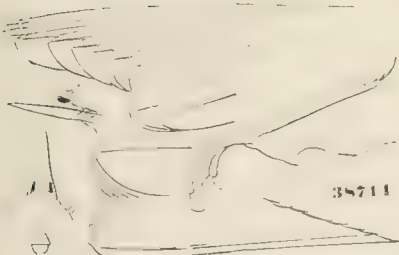
Dendroica tigrina.



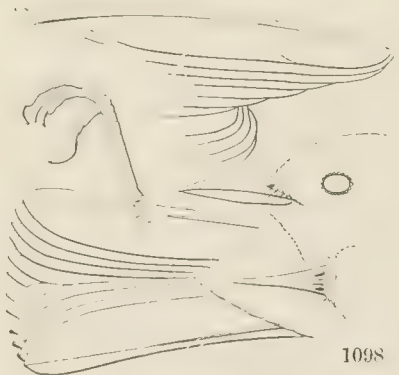
Hematheros vermicorus.



Helminthophila ruficapilla.

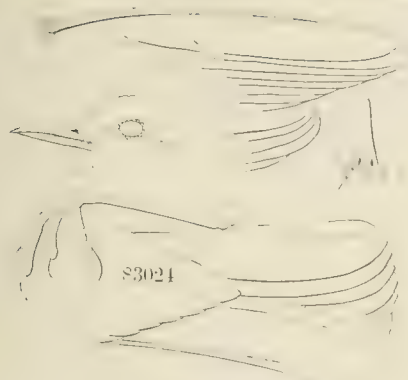


Dendroica coronata.



Dendroica dominica.

1000



Dendroica palmarum.

2230



Icteria virens.

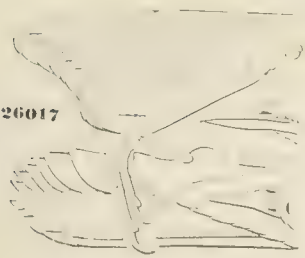


Geothlypis philadelphia.



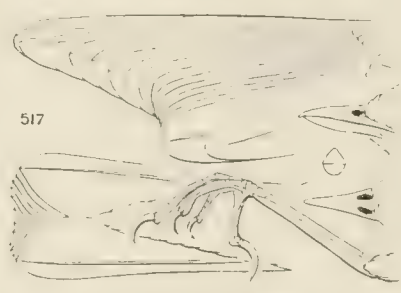
Geothlypis agilis.

26017



Geothlypis trichas.

517



Geothlypis formosa.

1133



Seiurus aurocapillus.

2226



Sylvania striata.

911



Setophaga ruticilla.



25959

Vireosylva barbatula

29271

Vireo solitarius.

19221

Ampelis garrulus.

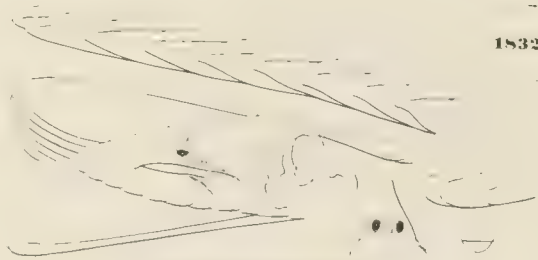
1561

Progne subis.

29248

Vireo noreboracensis.

35123

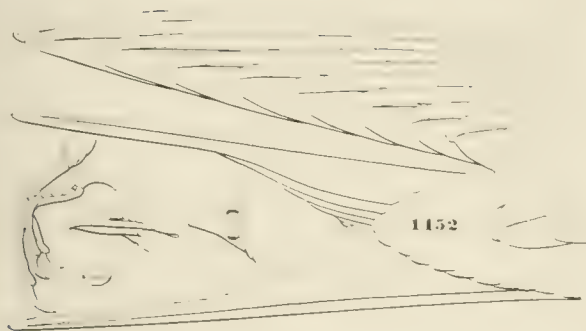
Lanius ludovicianus excubitorides.

18322

Petrochelidon lunifrons

1712

1712



Chelidon erythrogaster.



Tachycineta bicolor.



Piranga erythromelas.

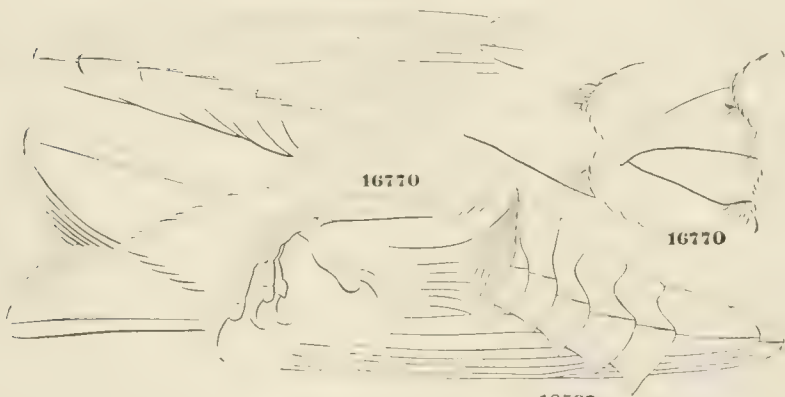


Clivicola riparia.



Stelgidopteryx serripennis.

16770

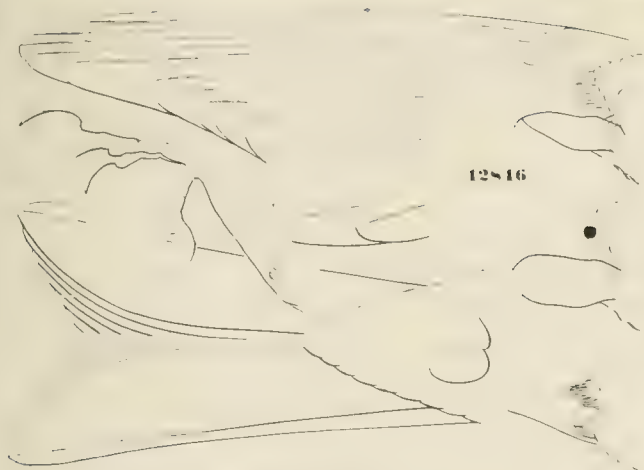


16770

Coccothraustes vespertinus.

18597

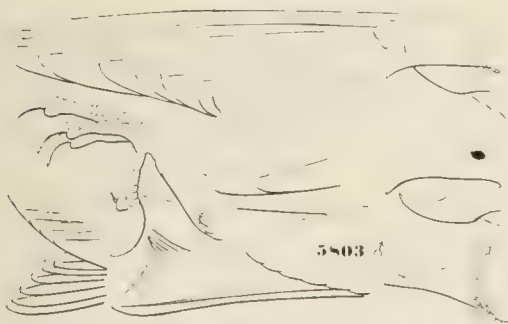
Coccothraustes vulgaris.



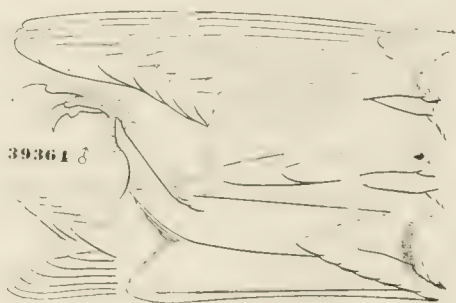
12816

Pinicola enucleator.

796 ♂

Carpodacus purpureus.

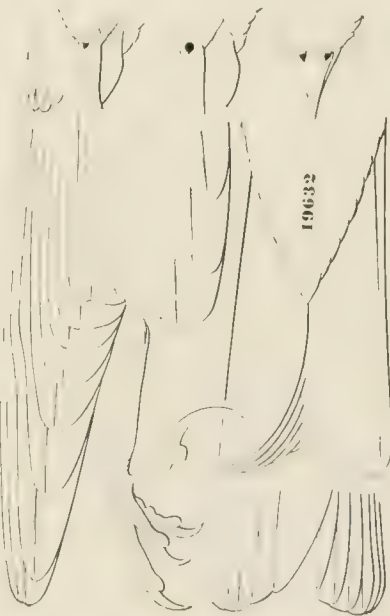
5803 ♂

Loria curvirostra minor.

39366 ♂

Acanthis linaria.

11096 ♂

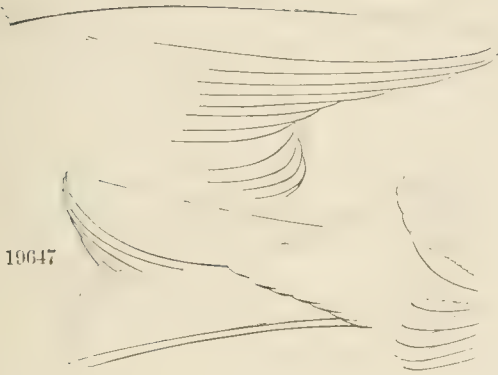
Spinus pinus.

19632

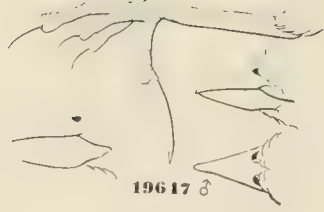
Plectrophenax nivalis.

1521 ♂

Spinus tristis.



19647



19617 ♂

Calcarius lapponicus.

6282 ♂

Rhynchophanes mccownii.

67471

Rhynchophanes mccownii.

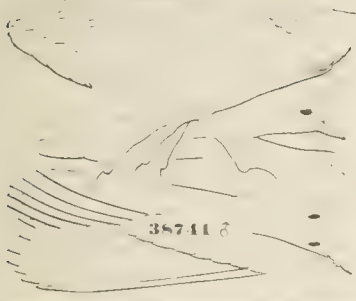
18788

Passer domesticus.

609 ♂

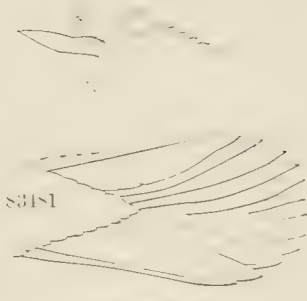
Ammodramus caudacutus.

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OF THE
CITY OF BOSTON



38741 ♂

Ammodramus saccinarius passerinus.



83181

A. longirostris.



80012

A. acronotus.



7108

A. sandwichensis savanna.



32411 ♀

Proocetes gramineus.



5557

Chondestes gramineus.



1506

Zonotrichia leucophrys.



11223

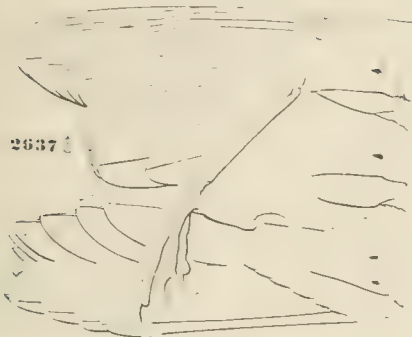
Junco hyemalis.



871

Spizella monticola.

2537



Melospiza fasciata.

83652



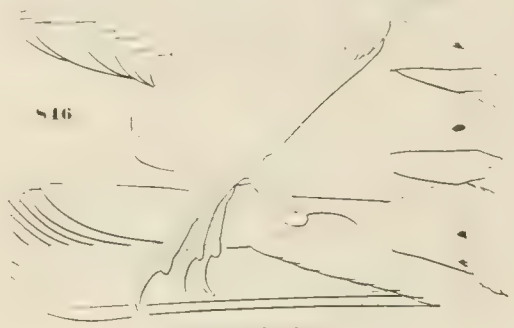
Melospiza georgiana.

10215



Penelope astralis.

846



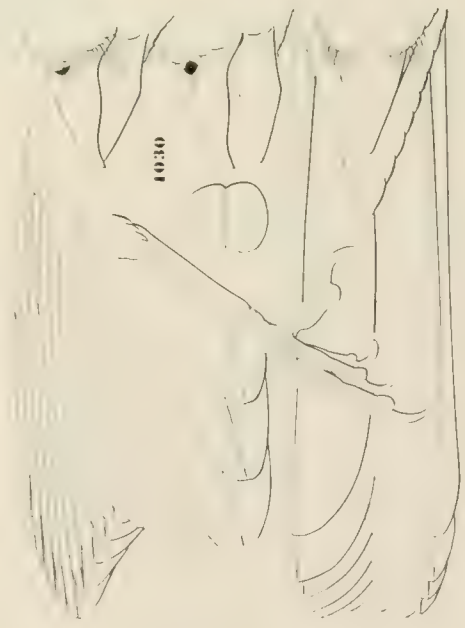
Passerella iliaca.

5559



Pipilo fuscus.

1030



Cardinalis cardinalis.



Habia ludoviciana.



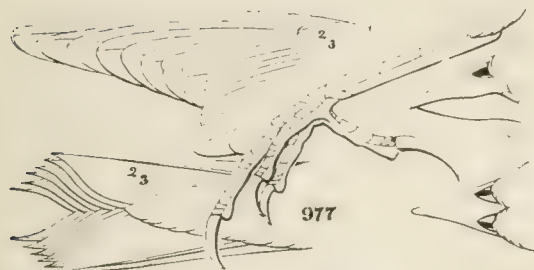
Passerina cyanea.



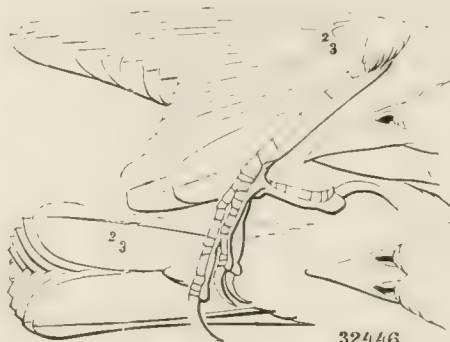
Guiraca caerulea.



Spiza americana.



Dolichonyx oryzivorus.



Molothrus ater.

44-3875
FBI
COMMUNICATIONS SECTION



Xanthocephalus xanthocephalus.

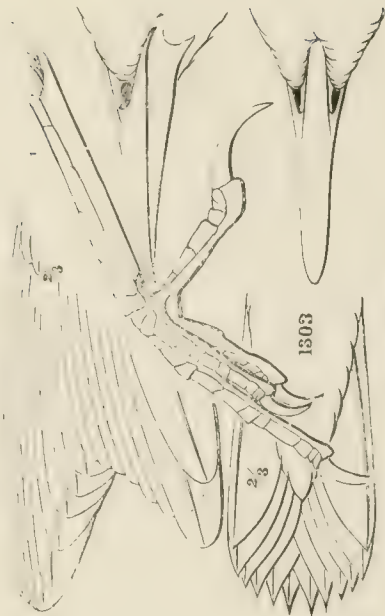


Agelaius phoeniceus.



6721

Icterus galbula.



1303

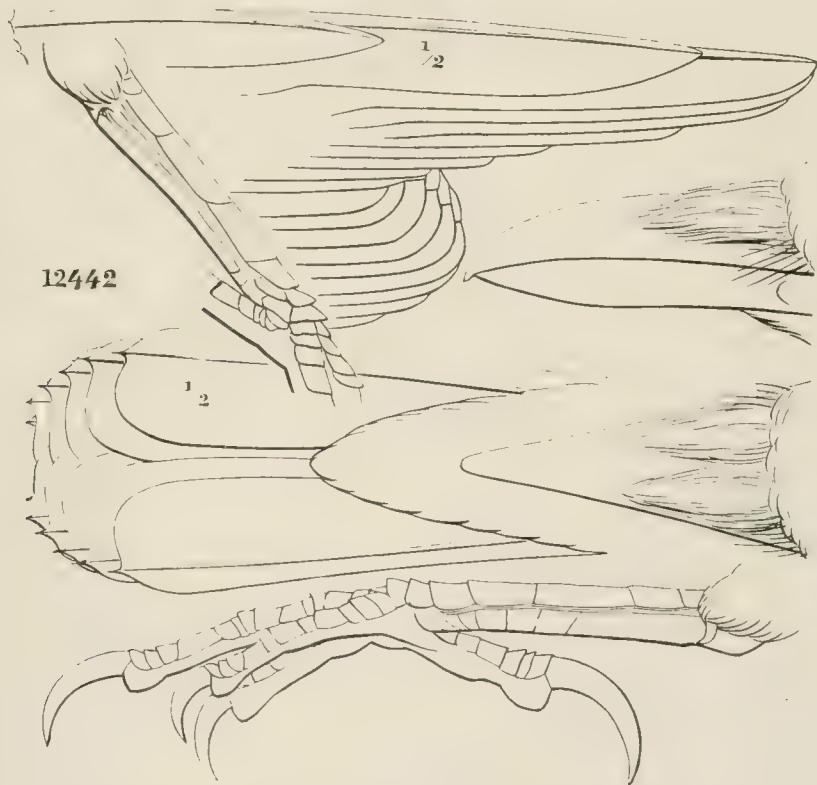
Sturnella magna.



Quiscalus quiscula.

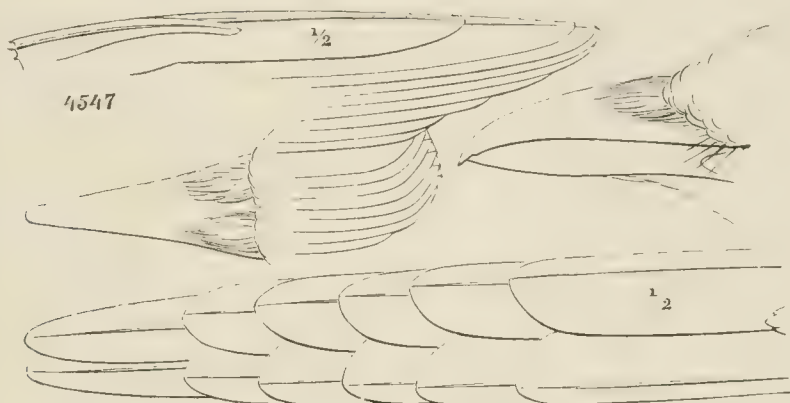


Scolecophagus carolinus.

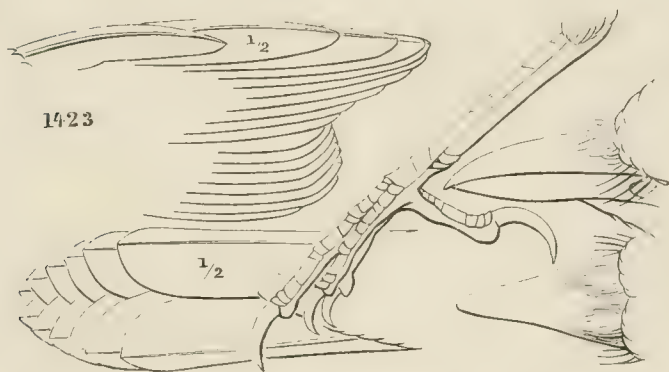


Corvus ossifragus.

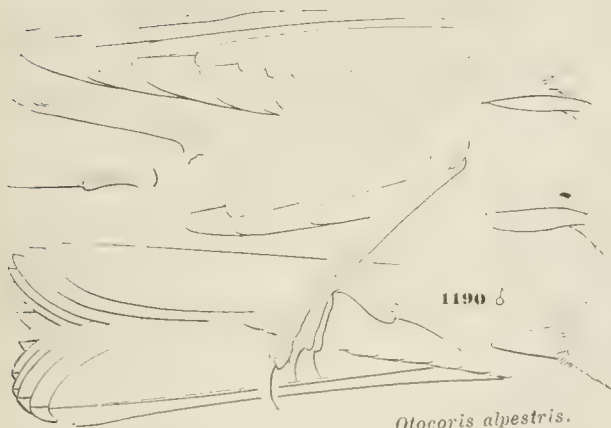
1878
J. H. H. H.
1878



Pica pica hudsonica.



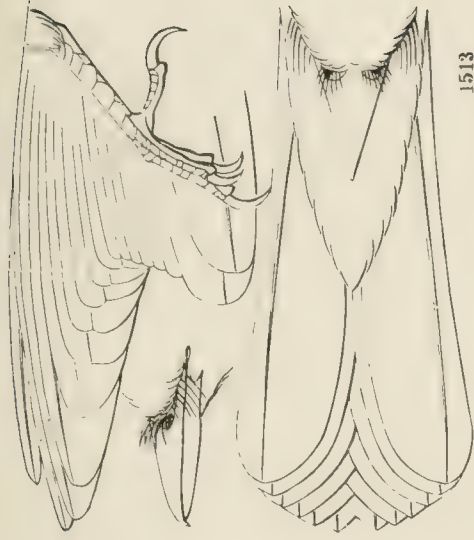
Cyanocitta cristata.



Otocoris alpestris.



19569



Mniarchus crinitus.



Empidonax arachneus.



Tyrannus tyrannus.

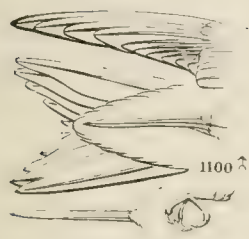


Sayornis phoebe.



Contopus borealis.

Let
the
world
be
a
stage
where
we
all
perform
our
parts



Trochilus colubris.



Chelidon pelagica.



Cordulia virginica.

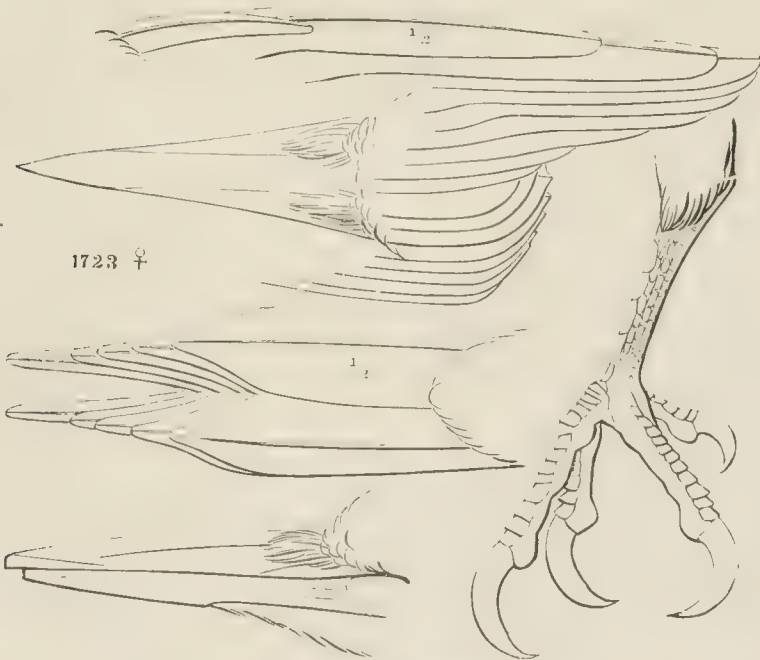


Antrostomus carolinensis.



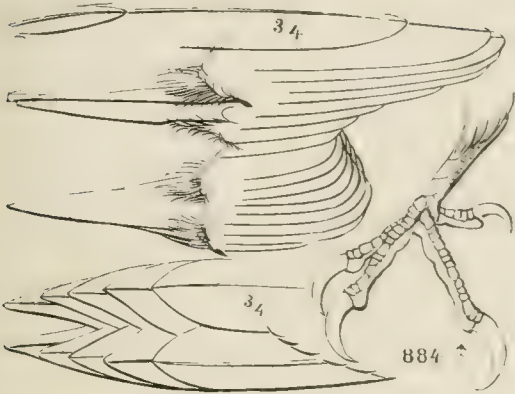


Camptophilus pinnatifidus.



Cephlaeus palatus.

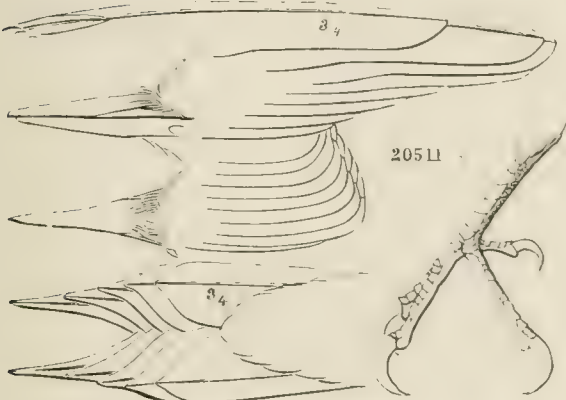
1000
1000
1000



Dryobates villosus.



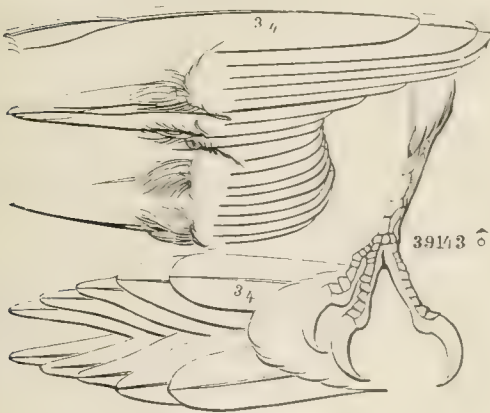
Melanerpes erythrocephalus.



Sphyrapicus castus.

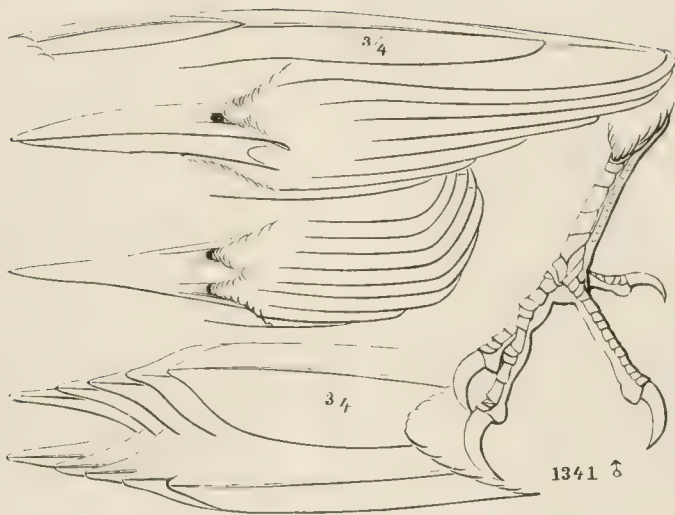


Melanerpes carolinensis.



Picoides arcticus.

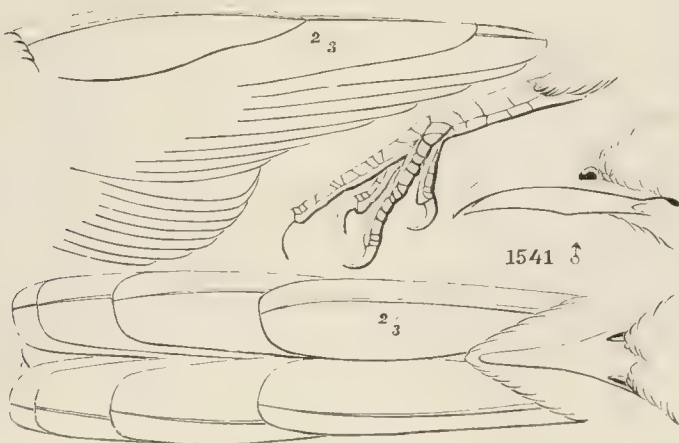




Colaptes auratus.



Ceryle alcyon.



Coccyzus americanus.

1875
J. T. ...
...



Conurus carolinensis.



Strix pratensis.



Asio wilsonianus.



Asio accipitrinus.

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OF THE
NATIONALITY IN JAPAN



Syrnium uela-ascia.



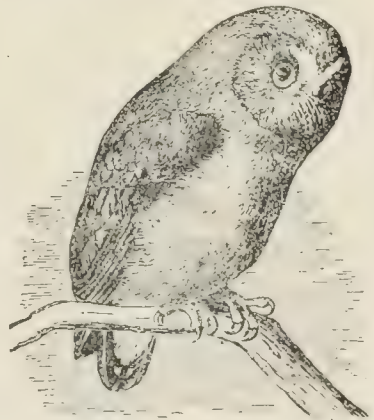
Syrnium uela-caparoch.



Nyctala acadica. (Adult.)



Scotiapter cinereum.

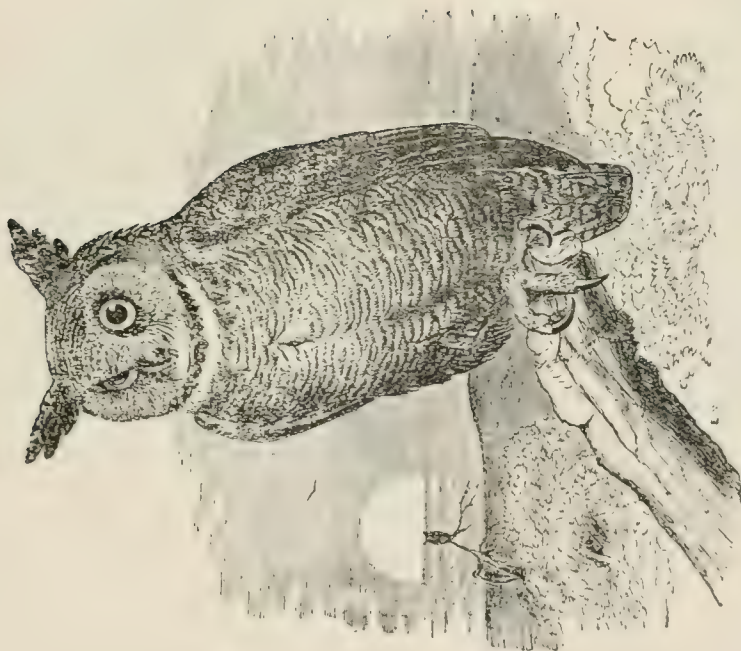


Nyctala acadica. (Young.)

THE
OF
JANUARY 1888



Nuclea nyctea.



Bubo virginianus.





Falco mexicanus.



Megascops asio.



Falco rusticolus.



Falco peregrinus anatum.

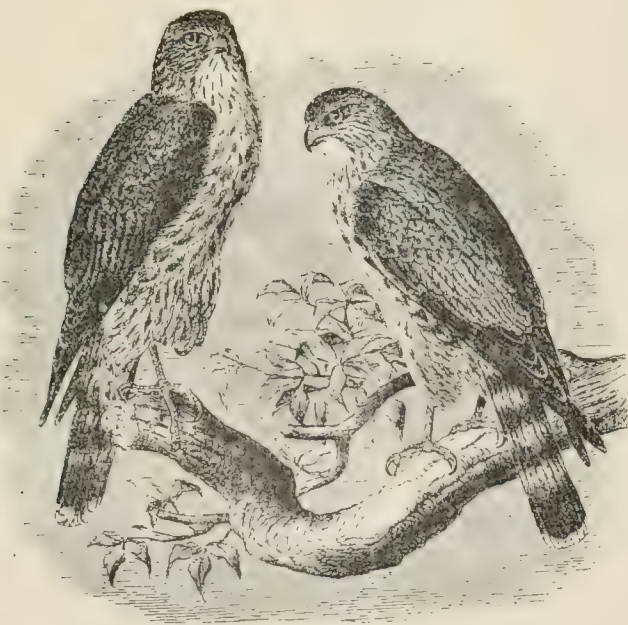
4. 1974
1975
1976



Falco sparverius.



Pandion haliaëtus carolinensis.



Falco columbarius.

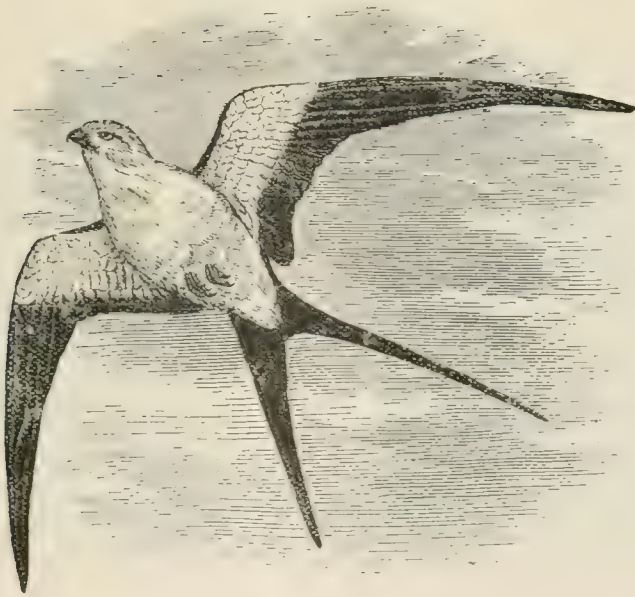




Elanus leucurus. (Adult.)

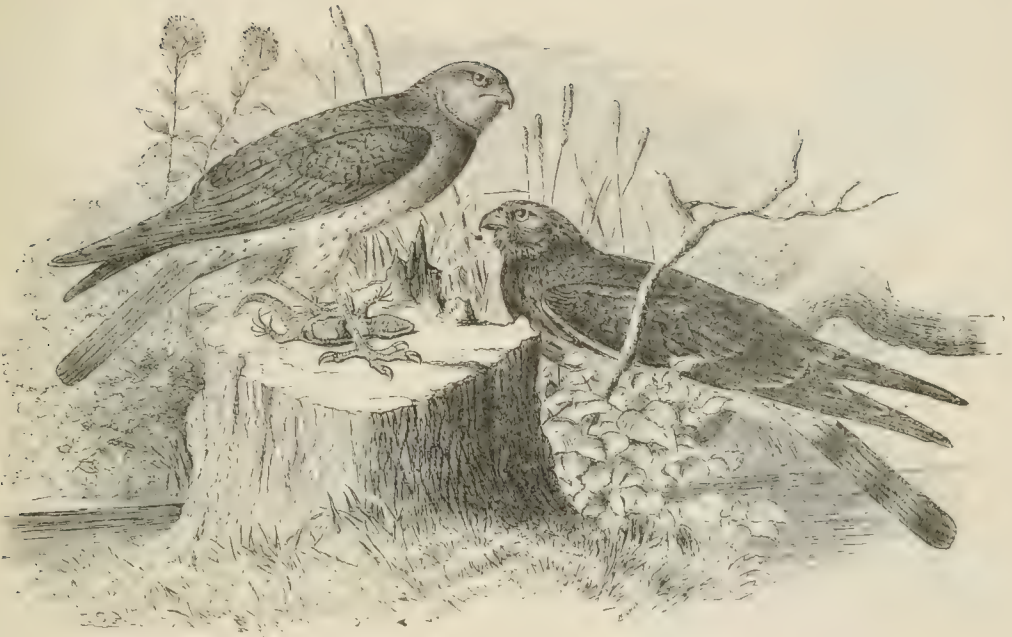


Ictinia mississippiensis.

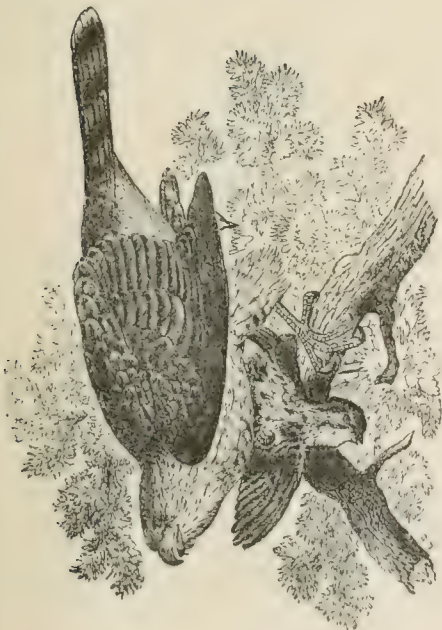


Elanoides forficatus.





Circus hudsonius.



Accipiter cooperi. (Adult.)



Accipiter atricapillus.

THE
END
OF THE
WORLD



Asturina nuda plagiata.



Buteo lineatus. (Adult.)



Buteo swainsoni. (Adult.)



Buteo borealis. (Adult.)





Buteo swainsoni. (Young.)



54338, ♀

Archibuteo.

(Posterior face of tarsus.)



41901, ♀.

Aquila.

(Posterior face of tarsus.)

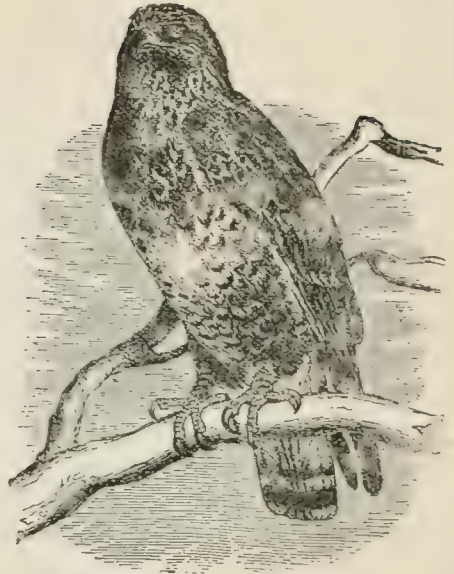


Archibuteo ferrugineus.

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MUSEUM OF
ART AND HISTORY
OF THE
CITY OF BOSTON



Aquila chrysaetos. (Adult.)



Archibuteo lagopus sancti johannis.
(Light-colored phase.)



Archibuteo lagopus sancti-johannis.
(Black phase.)



Foot of *Aquila*.



Foot of *Haliaeetus*.

1000
50
1000



Haliaeetus leucocephalus. (Adult.)



Ectopistes migratorius.



Zenaidura macroura.

THE LIBRARY
OF THE
MUSEUM OF NATURAL HISTORY

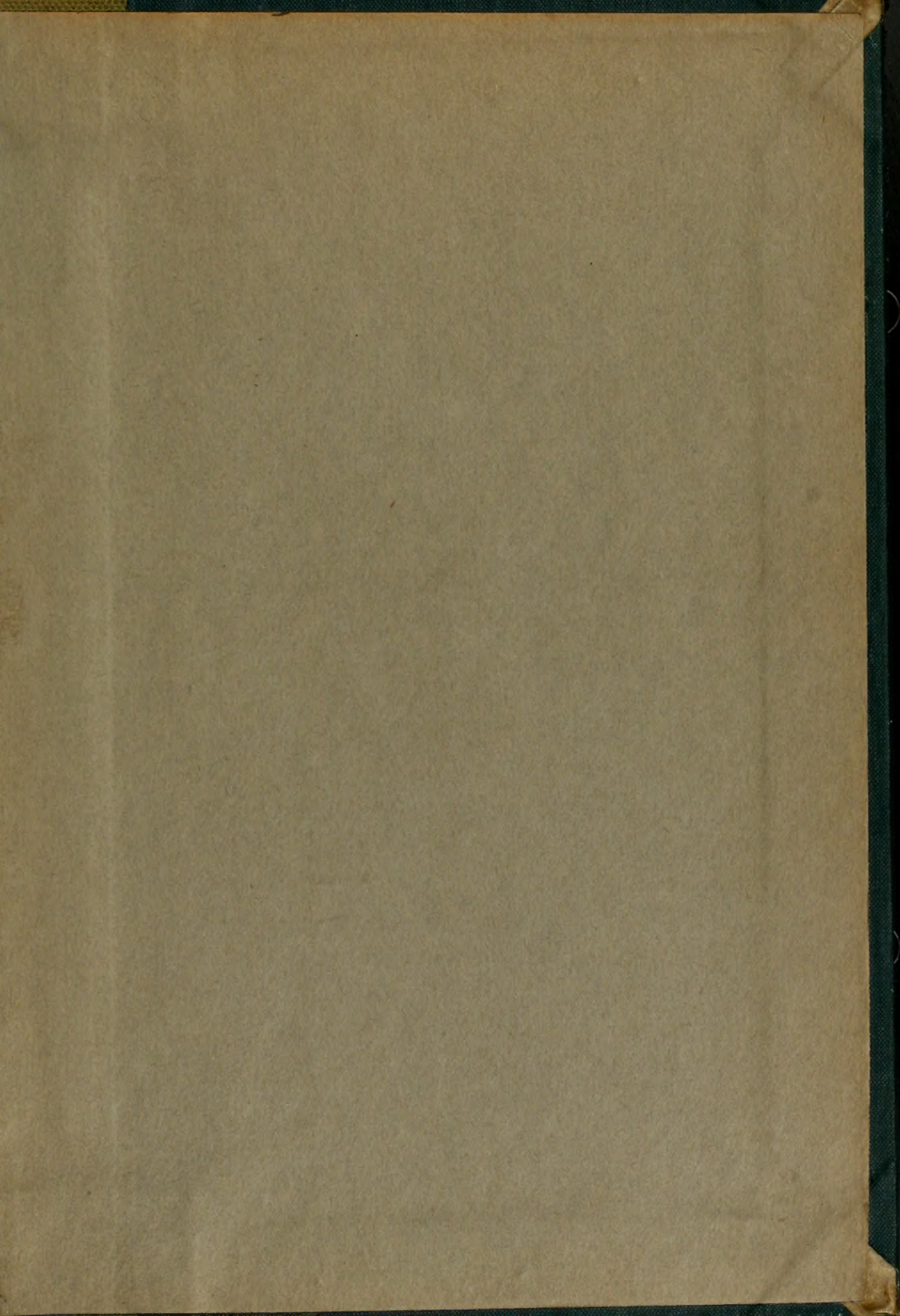


Cathartes aura.

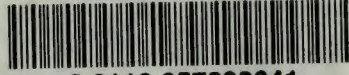


Catharista atrata.





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